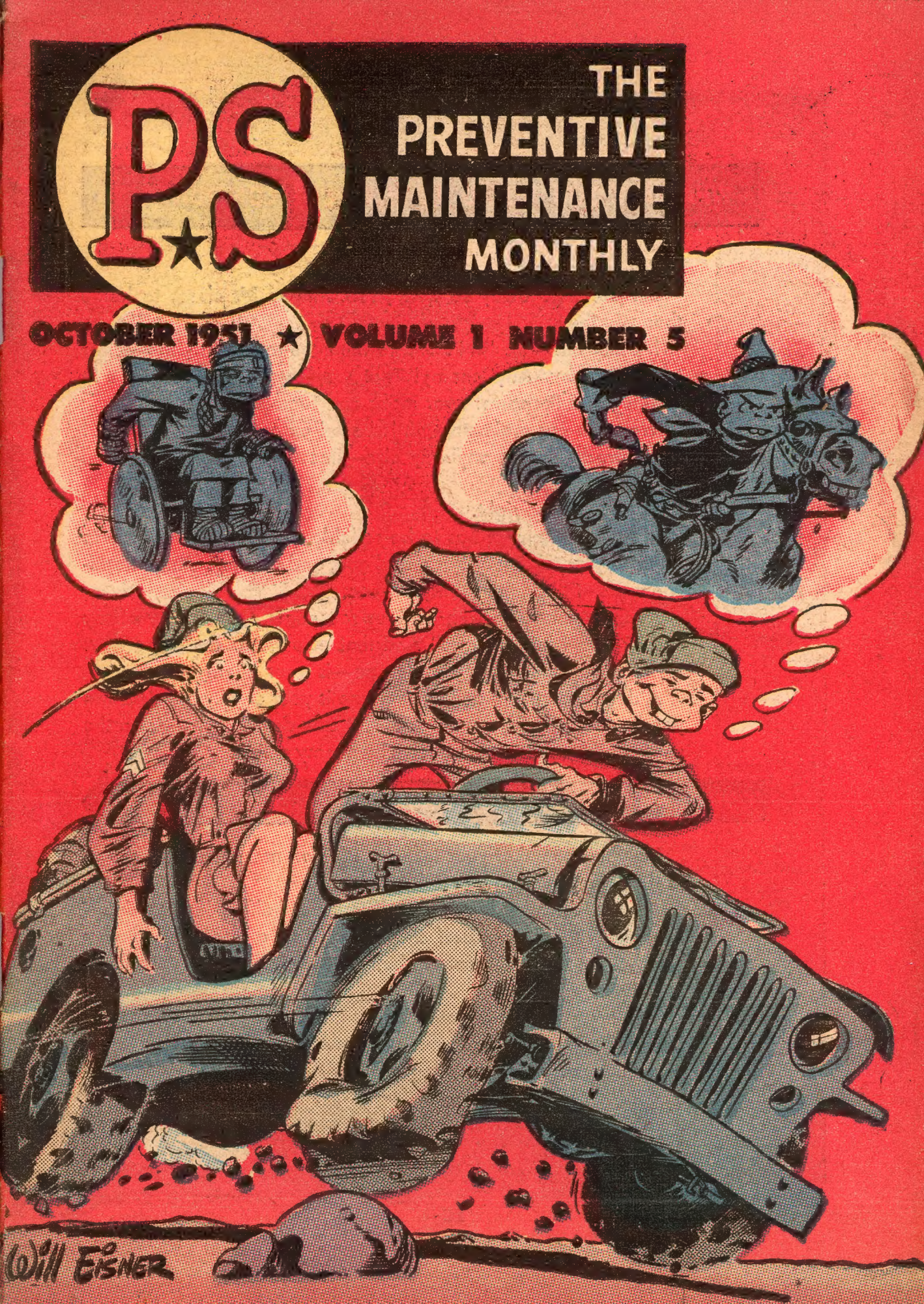
PS

THE PREVENTIVE MAINTENANCE MONTHLY

OCTOBER 1951 ★ VOLUME 1 NUMBER 5



WHAT ARE YOU DOING TO HELP THE COMMUNISTS?

B-u-r-r-r-u-uther . . . what a question.

But don't go away so quick, son. Maybe it's closer to home than you think.

It's like this—we 'UN's like to think we're downright superior to the enemy. **Any** enemy! That we have big advantages in mobility and firepower over mobs and fanaticism.

We think our main strength is based on our ability to turn out more products than anybody else—fine vehicles, fine weapons, and fine aircraft.

And we are so right.

But this equipment has to be rollable, fireable, and flyable to do us any good. Every truck, and gun, and airplane on the deadline is a statistic in the enemy's favor.

As the Arabs say, with obvious reasoning, "An enemy of my enemy is a friend to me." And that also works the other way. What helps your enemy hurts you—is your enemy too.

A deadlined truck, gun, or airplane is your enemy. It cuts down your mobility and your firepower. It cuts down your division the same as if troops were cut down by enemy action.

COUNT THESE TRUCKS, TANKS, MOTORS, AND MACHINES:

Do you know that your Infantry Division needs all these things to do a thorough job?

Anyone can plainly see that if you put half of 'em on deadline, you've got only half a division. And anyone can plainly see that chopping divisions in half automatically makes the commies twice as strong.

And I can see. Can't you? It takes more than just good production to make us stronger than any enemy — it also takes good maintenance.

TYPE INFANTRY DIVISION

2 motorized road graders
2 electrical repair trucks
2 instrument repair trucks
2 machine shop trucks
2 artillery repair trucks
1 shop equipment truck
1 five-passenger sedan
40 armored vehicles
38 ambulances
30 truck tractors
18 6-ton cargo trucks
18 liaison airplanes
17 wrecker trucks
11 tank recovery vehicles
9 4-ton cargo trucks
1,020 1/4-ton trucks (jeeps)
744 2-1/2-ton cargo trucks
336 3/4-ton weapons carriers
140 medium tanks
75 2-1/2-ton dump trucks
64 anti-aircraft gun carriages
52 heavy trucks
9 light tanks
6 motorcyles
6 tractors with bulldozers
5 air compressor units
4 Signal Corps repair trucks
3 small arms repair trucks
3 truck-mounted cranes

OCTOBER 1951

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Editor, PS Magazine
Aberdeen Proving Ground, Maryland

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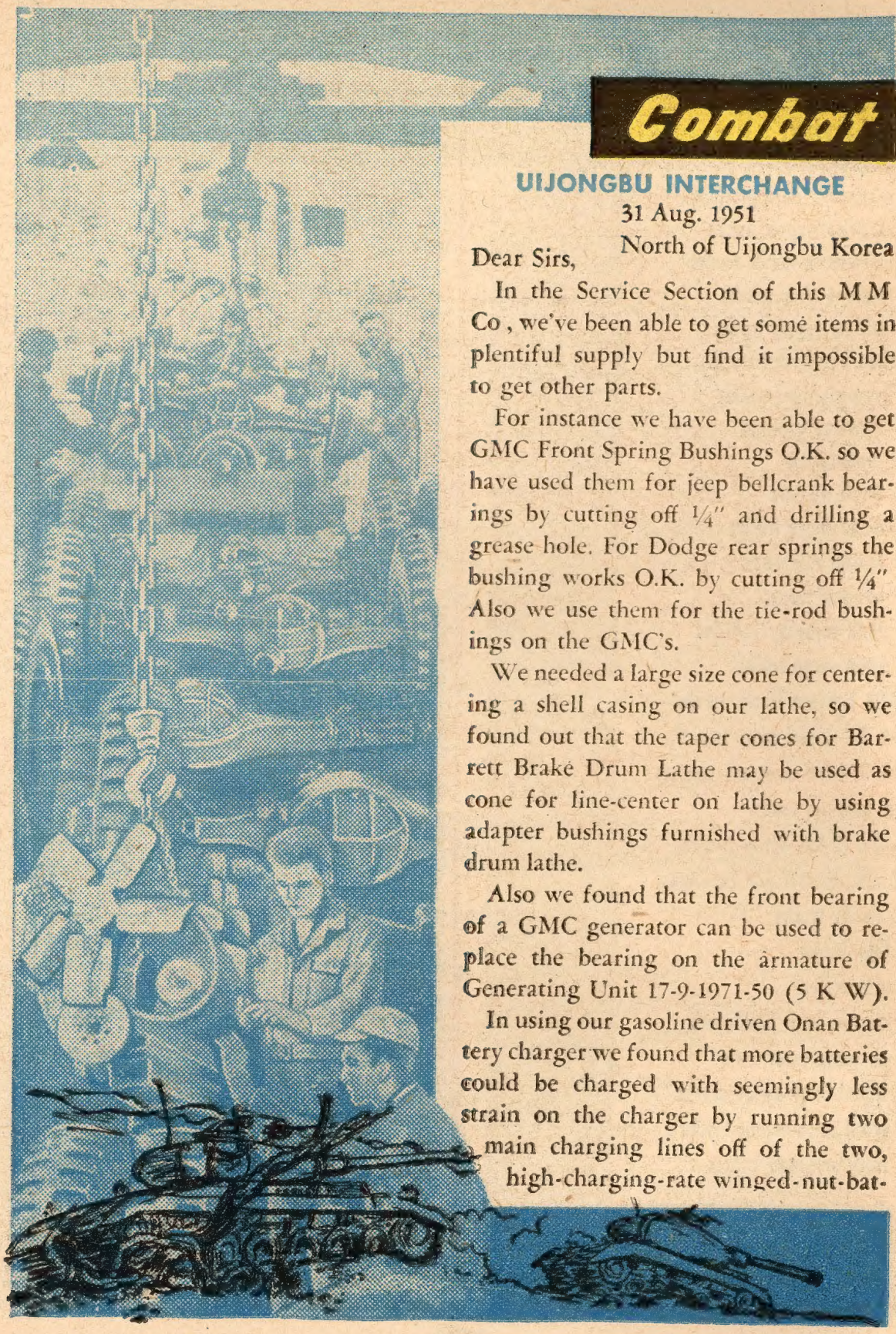


Combat

UIJONGBU INTERCHANGE

31 Aug. 1951
North of Uijongbu Korea

Dear Sirs,

In the Service Section of this M M Co , we've been able to get some items in plentiful supply but find it impossible to get other parts.

For instance we have been able to get GMC Front Spring Bushings O.K. so we have used them for jeep bellcrank bearings by cutting off ¼" and drilling a grease hole. For Dodge rear springs the bushing works O.K. by cutting off ¼" Also we use them for the tie-rod bushings on the GMC's.

We needed a large size cone for centering a shell casing on our lathe, so we found out that the taper cones for Barrett Brake Drum Lathe may be used as cone for line-center on lathe by using adapter bushings furnished with brake drum lathe.

Also we found that the front bearing of a GMC generator can be used to replace the bearing on the armature of Generating Unit 17-9-1971-50 (5 K W).

In using our gasoline driven Onan Battery charger we found that more batteries could be charged with seemingly less strain on the charger by running two main charging lines off of the two, high-charging-rate winged-nut-bat-

tery-connections on the side of the charging-plug panel and then hooking up either all 12-volt batteries, or 2 sixes in series and parallel, or all sizes in parallel to these two main charging wires.

The way we had it figured is that instead of the current having to go through the resistors on the plug receptacle, and thus putting an extra load on the charger for each battery by taking the current from the quick charger connections, all the energy could be utilized for charging the batteries. I know the book says to hook up two 6-volt batteries in series, or one twelve volt battery to these terminals, but if you hook up several 6-volt batteries in parallel they will charge O.K.

Before that, we had a 24-volt tank generator-and-regulator rigged up to an electric motor and put 4 6-volt batteries in series and with 4 or 5 sets of these in parallel.

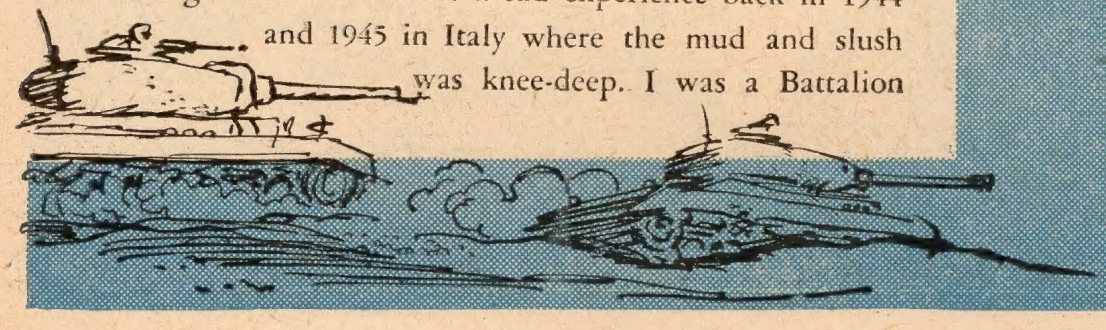
I hope one of these ideas can be of value to you. If you want to get in touch with me while I'm on furlough, please write to my home address til I get settled on rotation in the U.S. I've been in Korea since July 1950.

SFC Glen Hyslop, RA 6254777
21st Ord MMCo APO 301
c/o PM San Francisco

TOO LITTLE AND TOO LATE

Editor, PS Magazine
Aberdeen Proving Ground, Md.
Dear Editor, 6 Sept 1951

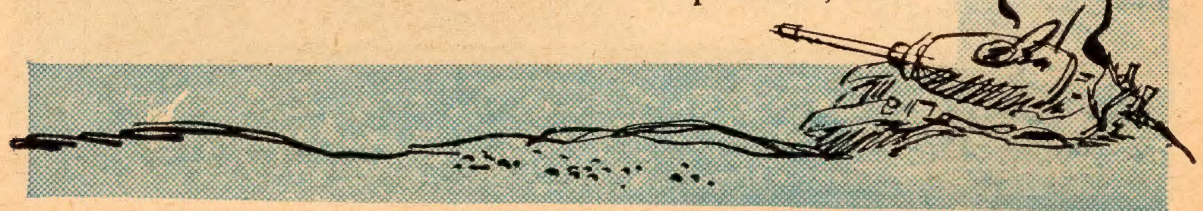
Let's don't neglect 1st and 2nd echelon maintenance, it will cost us in the long run. I remember a sad experience back in 1944 and 1945 in Italy where the mud and slush was knee-deep. I was a Battalion



Motor Sergeant in a medium Field Artillery Battalion. We were on the move most of the time and had barely enough vehicles for the job. After we lost a vehicle, the Battery had to load their "souvenirs" on other loaded vehicles and sometimes equipment had to be shuttled. Ordnance had more work than they could do, so we neglected our 2nd echelon and started to do 3rd echelon; replacing engines, transmissions, axles, etc. I knew we were doing the wrong thing but we kept our vehicles rolling. I thought that we could get by with a little less 2nd echelon maintenance for a few weeks. The fighting got a little rougher and we had to stay on line longer. Finally, we pulled back into a rest area. After we got settled down, most of the boys were trying to find a clean uniform to wear on pass. I decided that we should pull a few wheels and have a quick look at the brake shoes. Man that did it! The "old man" snorted a couple of times and all the maintenance men did an about face and started looking for fatigues. We had every man in the battalion who half-way looked like a mechanic, doing mechanic's work. The brake shoe linings were gone, the brake shoes were worn down so much that they could not be relined, the brake drums were worn too thin to be turned down, the wheel bearings were dry, the brake wheel cylinders were rusty, the rear spring seat bearings were dry and frozen, and the universal joints were dry and rusty on about 75% of our vehicles.

We all, from the Battalion Commander on down, learned a lesson; but what a shameful and costly one. It was all due to 2nd echelon maintenance neglect. The Battalion Commander outlawed all (souvenirs) and unnecessary equipment and we became strictly a 2nd echelon maintenance shop.

MSgt J. W. Worthington
Headquarters 5th ARMD Div
AC/S Automotive Section
Camp Chaffee, Ark.



How To Time The Ignition On Your

M46 TANK

Without A Timing Light

When an M46 crew has to yank out their tank engine, they usually go into a pow-wow over the timing, that starts something like this: "Hey, Joe, what magnetos do I start on, right or left?" then "What's the breaker point gap setting?" One says, "Set the gap at eighteen thousandths", Somebody else says, "Set it at one and one-half thousandths". Then another says, "Nyah . . . should be eighteen plus six thousandths". About the time the ignition timing discussions's beginning to sound like the "Kaesong debate", a real tank bruiser like Sgt. T. G. Madison comes along with an ignition set-up and keeps the tank jockies from pickin' files and wrenches out of their teeth.

Here's Sarge's method done by the numbers:

1. He takes out the engine-inspection plug so he can see the timing marks on the flywheel (Fig. 1).
2. Then he screws out #1 right spark plug and screws in a compression gage (41G-124) (Fig. 2).
3. From the transmission he removes the power-take-off cover and sticks in an input-turning wrench (41W1536-380) (Fig. 3).
4. The Sarge knows that #1 right piston must be on its compression stroke when timing the right magnetos, so he turns the input-wrench clockwise until the gage shows pressure in the cylinder, and continues turning slowly until $\frac{\text{V-ENG}}{\text{IR IGN}}$ appears on the flywheel opposite the timing pointer. (Madison says, "Leave the flywheel pointer on this marking until both right magnetos are timed and remember the right magnetos are on your **right** when **facing** the accessory end of the engine") (Fig. 4).
5. Then on the magnetos, he removes the cover screws and swings the covers and

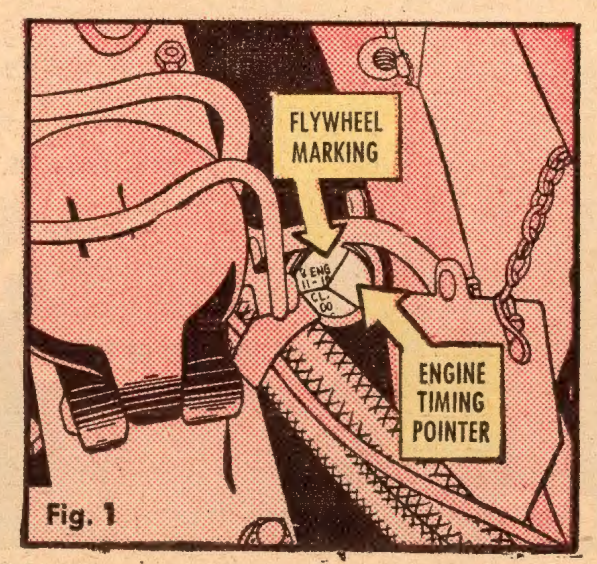


Fig. 1

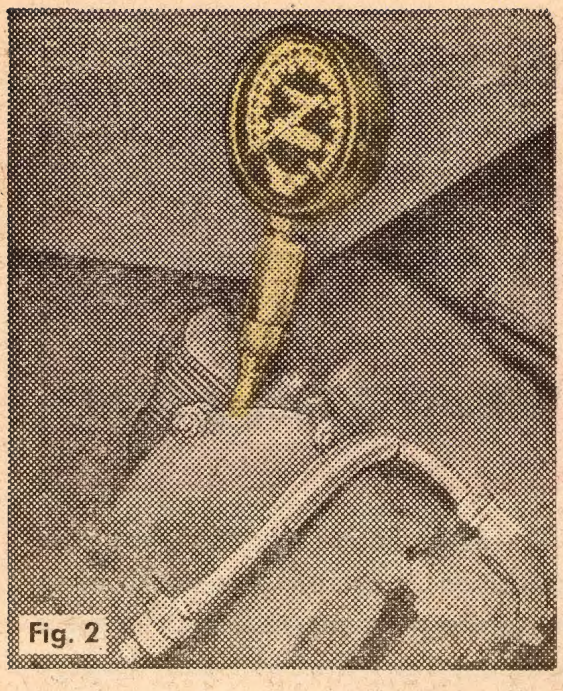


Fig. 2

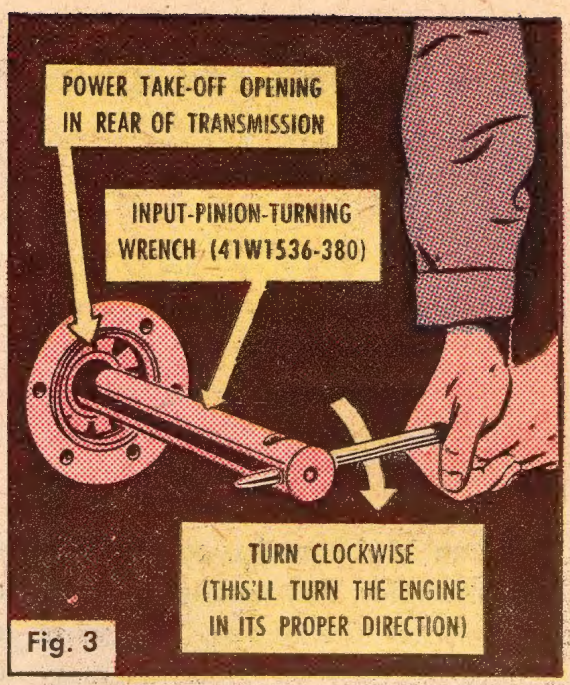


Fig. 3

swings the cables out of the way.

6. Now he loosens the nuts that hold the magnetos to the accessory case, then turns each magneto housing until the timing mark on rotor magnet pole and "L" scribe mark on magneto housing are in line. (Fig. 5) ("Disregard all other markings," Sergeant tells us, "The marks mentioned are the only ones that mean anything as far as you're concerned.")

7. When the marks are in line he then tightens the nuts that'll keep the magnetos in place.

8. When the timing marks are in line, a 0.0015" (one and one-half thousandths) feeler gage should have a slight drag when pulled from between the breaker points. (Sarge says to make it a CLEAN feeler

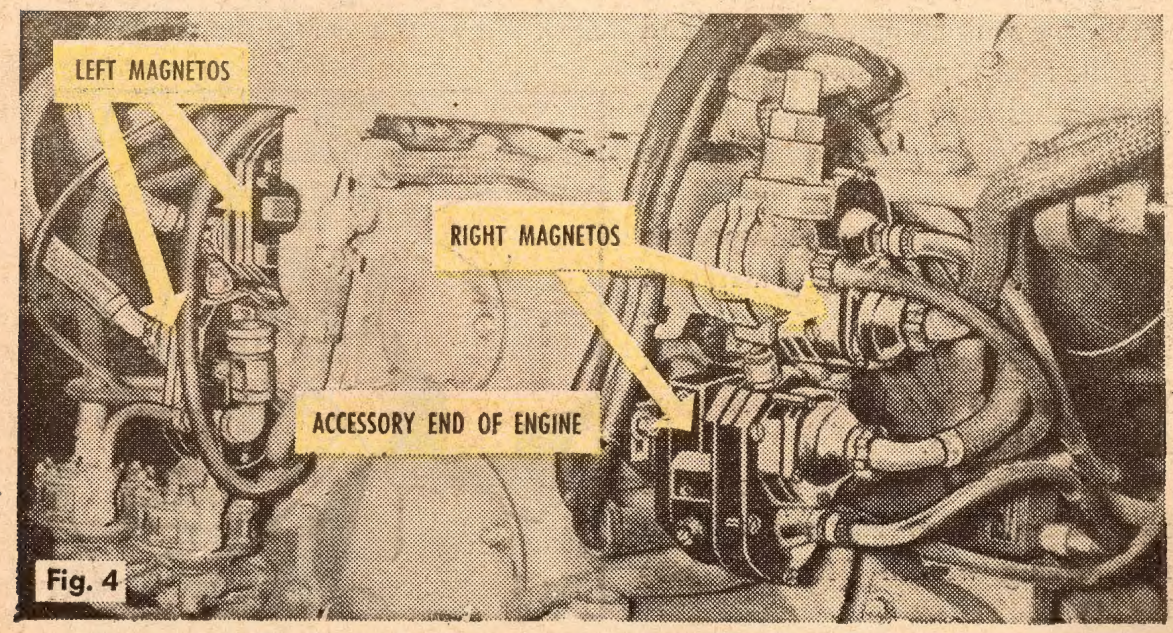


Fig. 4

gage—an oily film and dirt particles you can't even see, rubbing off the gage onto the breaker points will get you a dead magneto faster than you can spit.) If you get the drag, the gap is OK. If not, loosen the screws holding the breaker assembly and move it up or down until the gage gets that drag, then tighten both screws.

9. With both right magneto-breaker-point gaps at 0.0015", Sarge thinks you oughta get someone to turn the input-wrench clockwise until the breaker-point-cam follower is on **top** of the lobe that's just starting **under** the cam follower. This'll open the points to their maximum gap . . . which is 0.018" plus-or-minus 0.006". Check this maximum gap on all six lobes. If any maximum gap is not within the 0.018" ± 0.006" limit; the magneto isn't serviceable. Take it off and replace it with a new one.

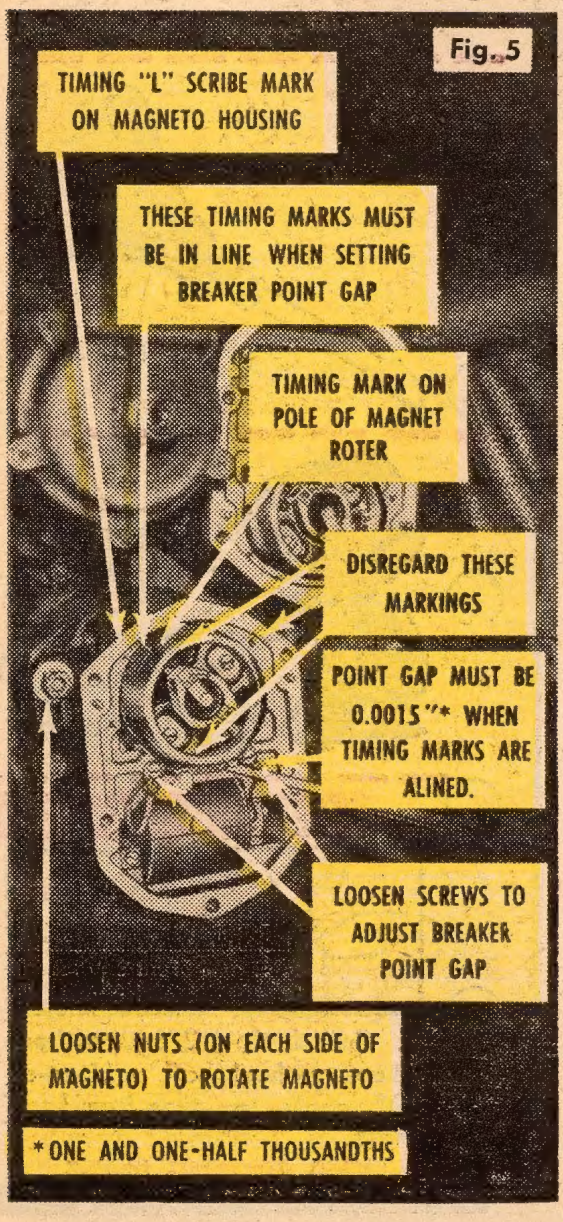


Fig. 5
TIMING "L" SCRIBE MARK ON MAGNETO HOUSING
THESE TIMING MARKS MUST BE IN LINE WHEN SETTING BREAKER POINT GAP
TIMING MARK ON POLE OF MAGNET ROTER
DISREGARD THESE MARKINGS
POINT GAP MUST BE 0.0015"* WHEN TIMING MARKS ARE ALINED.
LOOSEN SCREWS TO ADJUST BREAKER POINT GAP
LOOSEN NUTS (ON EACH SIDE OF MAGNETO) TO ROTATE MAGNETO
*ONE AND ONE-HALF THOUSANDTHS

10. After he sets and checks both right magneto gaps, he inserts a 0.0015" feeler gage into each one and then has the input wrench turned **counter**-clockwise, one-half turn.

11. He now pulls slightly on the gages and tells his helper to turn the imput-wrench **clockwise** slowly. "For perfect synchronization, both gages must come out of the gaps at the same time, if they don't, loosen the mag's mounting nuts and move the housing slightly until they do," says Sgt. Madison.

12. After he synchronizes both right magnetos, he cleans the cover gaskets, puts them and the covers back on the magnetos and screws them tight, and attaches all cables that he removed.

13. He removes the compression gage from #1 right spark-plug hole and puts the plug back in.

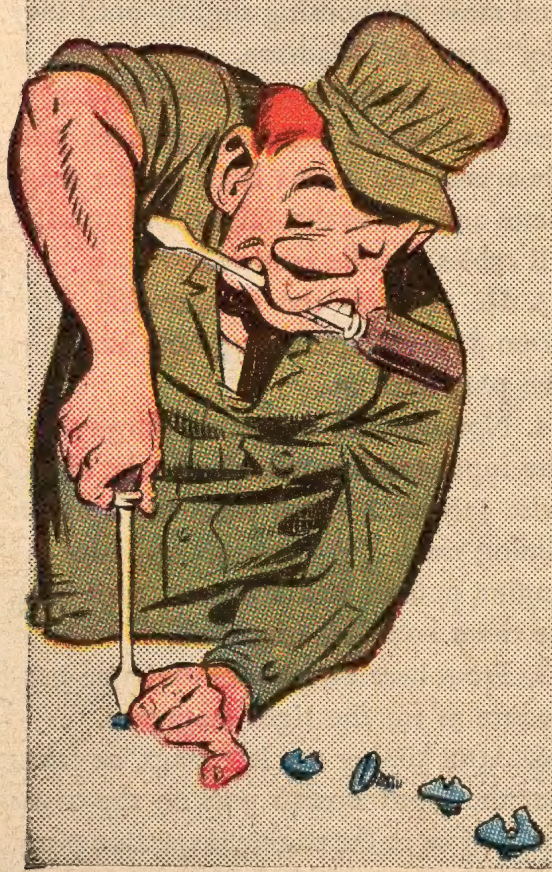
14. Now the left magnetos; Sarge turns the input-turning wrench slowly, clockwise (about 1 turn) until the ignition timing mark $\frac{\text{V-ENG}}{\text{IL IGN}}$ appears opposite the engine pointer and leaves it there until he times both left magnetos.

15. From here on he uses the same procedure as for the right magnetos.

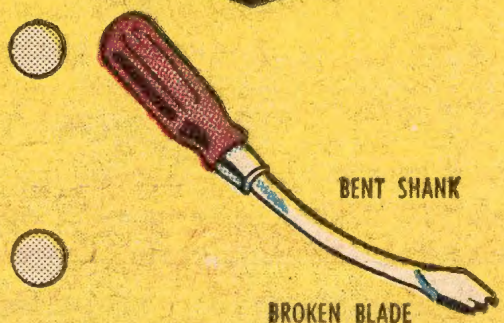
16. After timing the left mags, he takes out the input-wrench puts on the cover and screws in the engine inspection plug.

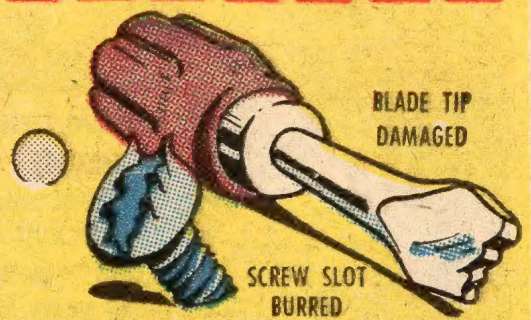
Hand-Tool CLINIC

THE LOWLY SCREWDRIVER AND HOW TO USE IT



IF THESE THINGS HAPPEN





HOW TO SALVAGE

1. Grind tip on emery wheel 90° angle to shank.

2. Square dress off a bit-at-a-time from face.

KEEP COOLING BLADE

HERE'S WHAT'S WRONG

You've been using it for a PRY BAR, Buster! The tip's hardened against wearing. The harder it is, the easier it breaks.

SO.....

USE A PINCH BAR—It's made for prying, strong enough to resist bending. If you must use a screwdriver, use good mechanical judgment.

HAMMERING on a screwdriver can break the shank, mushroom the end, snap off the blade ...and make the handle slip, or split it.

You CAN TAP on a screwdriver that has a shank going all the way through the handle. Watch out for plastic handles . . . Some can take tapping, some can't.

The wrong screwdriver for the screw the screwdriver blade doesn't fit the screw slot.

Use the correct size so the blade makes a snug fit in the slot. You'll do the job faster and easier.

AND REPAIR BLADES

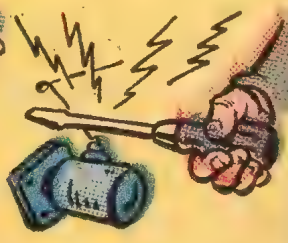
3. Keep the angle of taper very slight. Start taper as high as possible.

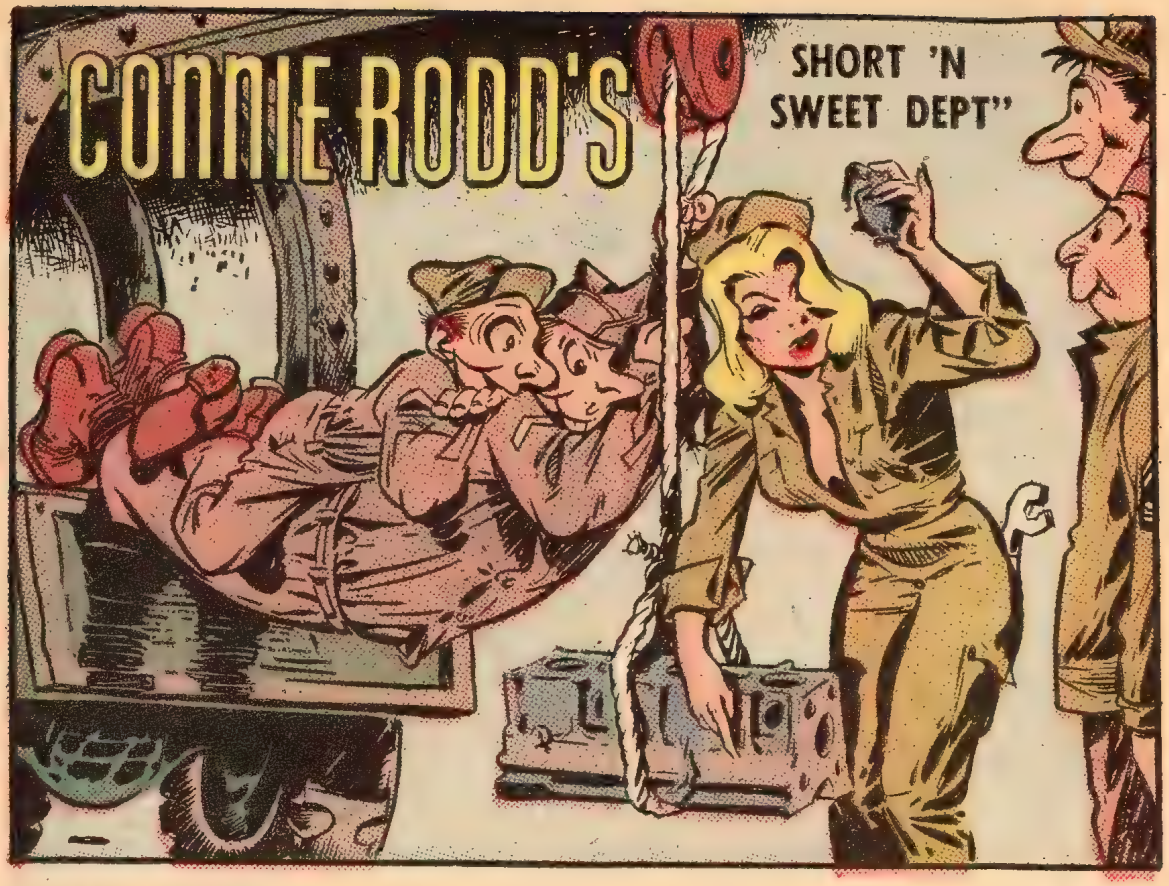
4. Sharp knife like edges break off very easily.

DON'T USE SCREWDRIVERS FOOLISHLY.

NOT LIKE THIS

NOT LIKE THIS





Idle radiators rust

I don't think I'm getting **too** far out of my echelon in stating that Herman didn't actually get a "hotter" engine for his 6x6 chariot last week, regardless of what he says. As a matter of fact, it just **runs** hotter, and I'll tell you why. When the shop lads pulled it off the deadline and yanked the engine, they forgot to check supply, and sure enough when they did, there was no replacement. So the engine-less chassis was rolled back on deadline and it sat there until the new plant arrived. Now Herman is bragging that his new engine is "hotter" because it runs around 200° instead of the old 180°, but it actually doesn't run any better or pull as good.

The real poop of the matter lies in a chemical formula which deals with oxidation of metals—or rusting. A nice insulating film of rust was formed during the wait, which keeps Herman's engine heat sealed in, instead of being transferred to the air.

If the jolly buckos in the shop had used some foresight and plugged the radiator outlets and filled the radiator during storage, I would not have had to make this Monday morning prediction that Herman will soon be needing another engine if they don't flush his mucked-up cooling system.

Storing batteries

And while I'm talking, what's with care of stored batteries? Couple of cardinal rules here—the most important is keeping them in a place that's gonna be

dry, cool and clean. Fact is, the damper and warmer the climate, the faster your batteries up and die.

Good idea to build some storage shelves deep enough to clear the posts and open enough for air circulation. How's about recharge jobs too, while we're at it. Says here the charge loss will average about a point a day at normal (70-80°) temperatures, but loss is less at lower temperatures—much more above normal. So I got myself a system—learned how much of a boost charge to give and how often—marked the dates on each battery (under the receiving date) and promoted them with age.

Tempseal

Here's a chore you can skip in the future to lighten your burden. It concerns all water-proofed vehicles with the 24-volt systems (¼, ¾, 2½, and 5-ton). Up to now you've had to scrape off the water-proofing Tempseal to get at the battery terminals and caps and things, and then slap on some more Tempseal when you were through tinkering. Well, from now on if you have to scrape off the goop, leave it off.

Vehicles coming out of production don't have their batteries coated with Tempseal anymore—the water-proofing compound will be supplied in the deep-water-fording kits instead. Batteries will be coated with the stuff just prior to fording, and in the meantime, nothing.

Steering knuckle boots

Boots . . . boots . . . boots . . . they're back in the news again!

Seems there are a bunch of vehicles in the field with torn steering-knuckle boots and no replacements. What to do—what to do?

There's a change-over going on right now. A larger boot is in the works that has a molded-in zipper instead of one that is sewed in—should be far better. But it's slow coming through. Result: Lots of supply stations with no replacements. And lots of fellows wondering what to do about their trucks.

According to the latest report, the maintenance people say it's OK to go ahead and drive your truck without a boot if you haven't any spares. But bare knuckles get skinned easy, so try to keep 'em clean and oiled till the boots come.

Order replacements by all means, but in the meantime, don't put your truck on the shelf. Drive it!

With or without a boot.

Wide open spaces

If you'll peek behind the seat on your ½-ton 4 x 2 pickup, you will probably find rust in an open space you never knew was there. It's happening along the open seam at the cab and seat buckbelt line. Cleaning it up is one thing—keeping it rust-free is another. Here's what you do.

After you give the seam a good rub-

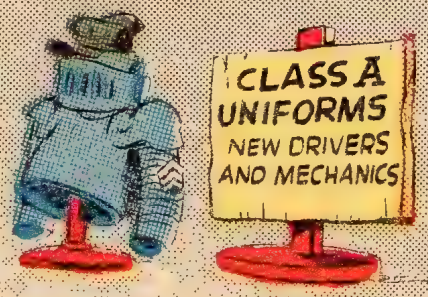
down with steel wool, wash it off and dry it thoroughly, spray the open seam with Compound, Rust Preventive Film (Stock Number 14-C-507-10) (Spec Number AXS-673). Let it dry for about 24 hours. After it's good and dry, fill the open space with Sealer, Synthetic Rubber (Stock Number 7300-828075). And that's it.

Go easy on this post

I really hate to mention this—you'd think anyone who's been around anytime at all would know that it takes a little patience and a lot of careful coaxing to convince a battery-terminal clamp and a battery-terminal post to part company cheerfully—especially if there's a lot of corrosion around. But judging from the number of M34 and M38 batteries showing up lately with their terminal posts snapped off flush at the battery cover, a lot of people don't know that the terminal post and the battery assembly form a most delicate union.

So if you're guilty of strong-arming

If they're there —use 'em!



There's been a lot of loose talk going around lately about you gotta disconnect this and you gotta disconnect that on your trucks and jeeps just cuz somebody might use it the wrong way and do beaucoup damage. Honest, now, isn't that just as silly as saying you shouldn't give the soldiers ammunition because they might shoot themselves?

Those gadgets and thingamabobs were all put there for a purpose and it's up to everyone who has any dealings with them to know exactly what they're all for and how and when to use 'em.

Take, for instance, the winch.

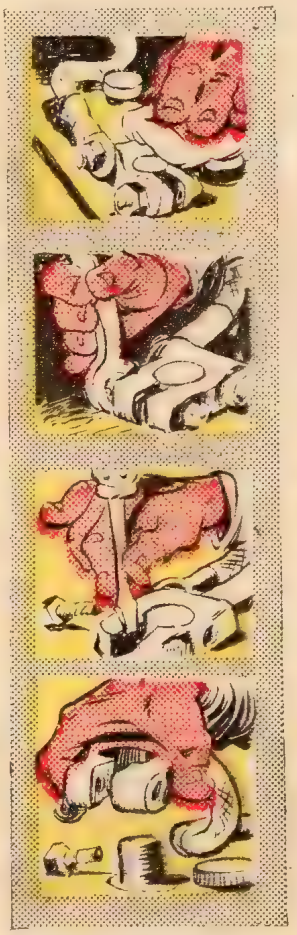
Probably never in your life will you meet with a worse Jezebel. The damage it can do, brother, if anyone starts monkeying around it without knowing all the answers, would give the Sphinx a nervous breakdown. But does anyone suggest eliminating winches?

What you do is learn all it's tricks —know all the angles. And that goes for just about any attachment you can name—brakes, primer, fording valve-control-button, even headlights—they can all do their share of lousing things up if they aren't handled right. None of them were meant for ornaments.

Just figure, if they're there use 'em —but learn to use 'em right!

the terminal clamp when you take it off the post—please, you make Connie most unhappy. Try the following suggestions on the job and you'll find that the post will remain on the battery as it should.

Clean off the water-proof compound from the terminal - clamp and post—remove the clamp bolt with a wrench and if the clamp stays closed tight, ease its jaws open carefully with a screwdriver — patience now, you know you don't have much working room. Now take a firm grip on the clamp and lift careful like. You'll come up with the clamp and the battery'll keep its post.



M34 winch shear-pins

This is mighty important, so let's have your good ear. Check the winch shear-pins you're carrying around for that 2½-ton, Reo and Studebaker, M34. Beg or borrow a magnet for yourself, and if you can pick-up the pins with the magnet —THROW AWAY THE PINS! Do not use them. They are good for salvage only, not the M34 or you. They're not shearing when they should, and I sure don't have to tell you what that means to your vehicle and/or your neck.

What you do, but immediately, is draw new ones. BUT . . . make sure you get new pins. For the time being, you'll be using the same stock number (ORD G742-7538740) for the shear pins, and with that stock number you may or may not get the new-issue pins. The new shear pins are aluminum. Repeat—aluminum. The pins you should discard are cadmium or zinc plated steel.

You may be able to distinguish between the two (good and bad) by the difference in weight or appearance—but I'd use the magnet test and be really certain.

Just remember: no matter whether you've had the pins laying around or you draw more from stock, test them all. If the magnet picks up the pin—throw it away. When the pin won't cling to the magnet, it's aluminum. And that's the only kind you want.

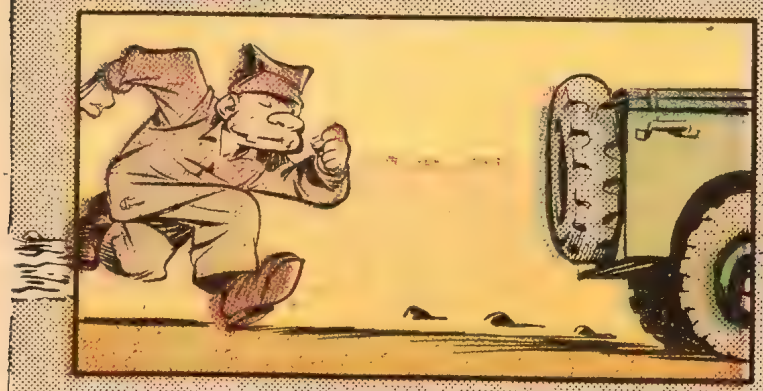
BULLETIN

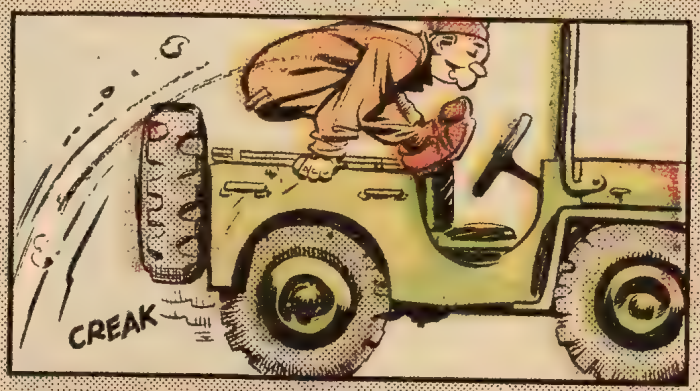
Word comes from Army Field Forces that in the future spare tires, tubes and wheels will be SOP for all tactical vehicles.

The spare equipment will also be standard for all new commercial type vehicles procured, but ZI installations will pull the extras off of their vehicles used in the immediate vicinity and pool 'em in storage to guarantee full use of all available spares

JOE DOPE

HOW TO PERFORM A BEFORE-OPERATIONS SERVICE ON YOUR VEHICLE





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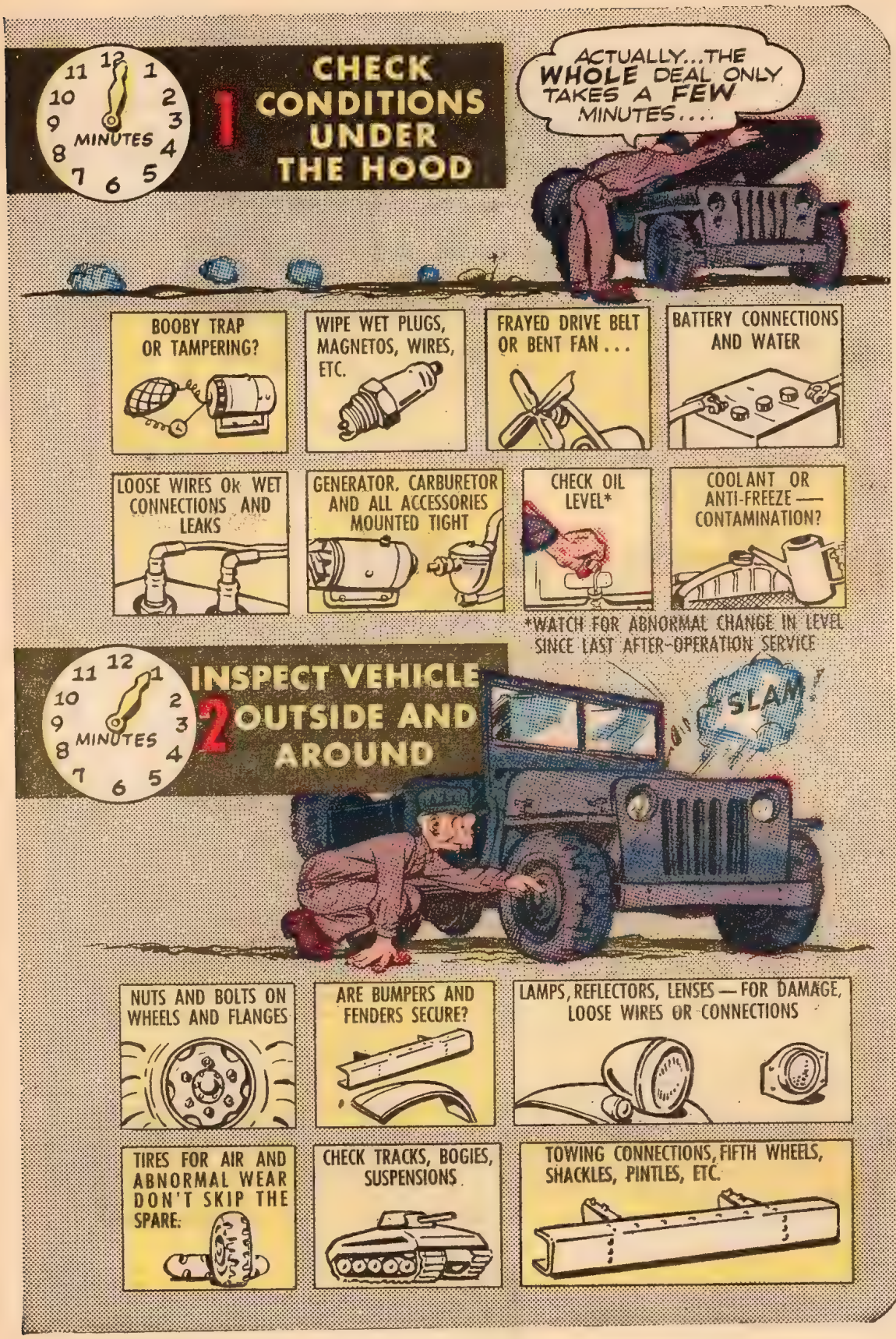
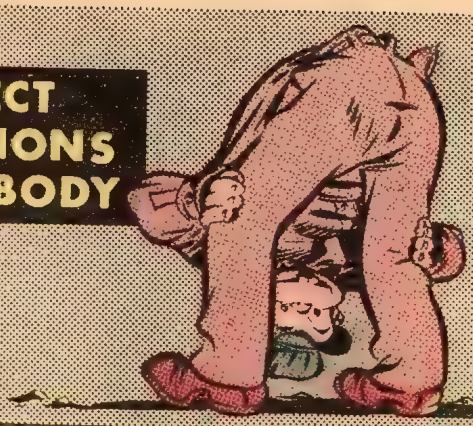
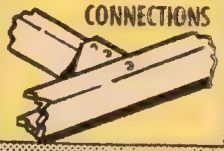

1 CHECK CONDITIONS UNDER THE HOOD
MINUTES
ACTUALLY...THE WHOLE DEAL ONLY TAKES A FEW MINUTES....
BOOBY TRAP OR TAMPERING?
WIPE WET PLUGS, MAGNETOS, WIRES, ETC.
FRAYED DRIVE BELT OR BENT FAN . . .
BATTERY CONNECTIONS AND WATER
LOOSE WIRES OR WET CONNECTIONS AND LEAKS
GENERATOR, CARBURETOR AND ALL ACCESSORIES MOUNTED TIGHT
CHECK OIL LEVEL*
COOLANT OR ANTI-FREEZE — CONTAMINATION?
*WATCH FOR ABNORMAL CHANGE IN LEVEL SINCE LAST AFTER-OPERATION SERVICE
2 INSPECT VEHICLE OUTSIDE AND AROUND
MINUTES
SLAM!
NUTS AND BOLTS ON WHEELS AND FLANGES
ARE BUMPERS AND FENDERS SECURE?
LAMPS, REFLECTORS, LENSES — FOR DAMAGE, LOOSE WIRES OR CONNECTIONS
TIRES FOR AIR AND ABNORMAL WEAR DON'T SKIP THE SPARE.
CHECK TRACKS, BOGIES, SUSPENSIONS
TOWING CONNECTIONS, FIFTH WHEELS, SHACKLES, PINTLES, ETC.

3 INSPECT CONDITIONS UNDER BODY

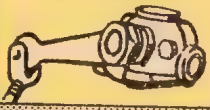


LOOSE BOLTS — FRAME CONNECTIONS



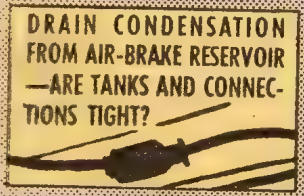
SPRINGS . . . CHECK ABNORMAL SAG, SHIFTED LEAVES, CLIPS, SHACKLES

WATCH FOR LEAKS OF SHOCK ABSORBERS



LOOK FOR FUEL, OIL, WATER, BRAKE FLUID LEAKS

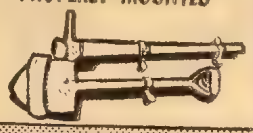
DRAIN CONDENSATION FROM AIR-BRAKE RESERVOIR — ARE TANKS AND CONNECTIONS TIGHT?



STEERING GEAR — ARMS AND LINKAGE

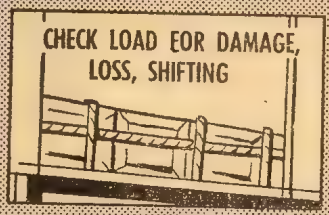
4 AND OTHER OUTSIDE ITEMS

TOOLS AND EQUIPMENT PROPERLY MOUNTED



FUEL CANS FILLED?

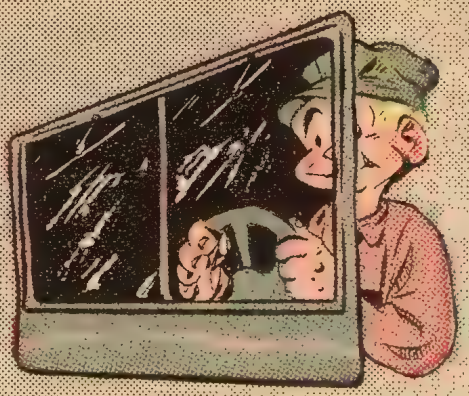
CHECK LOAD EOR DAMAGE, LOSS, SHIFTING



IF SPECIAL ITEMS

SEE VEHICLE TM's FOR ADDITIONAL SERVICES PECULIAR TO THOSE VEHICLES

5 INSIDE YOUR VEHICLE



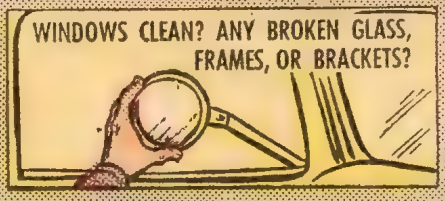
ARE ALL FIRE EXTINGUISHERS SECURE?

LOOK FOR CORRODED NOZZLES, CLOSED VALVES

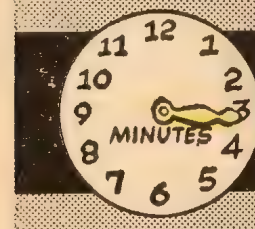
IN TANKS, CHECK EXTINGUISHER LINES AND NOZZLES IN ENGINE COMPARTMENT— ARE THEY AIMED RIGHT?

CLEAN AND ADJUST MIRRORS

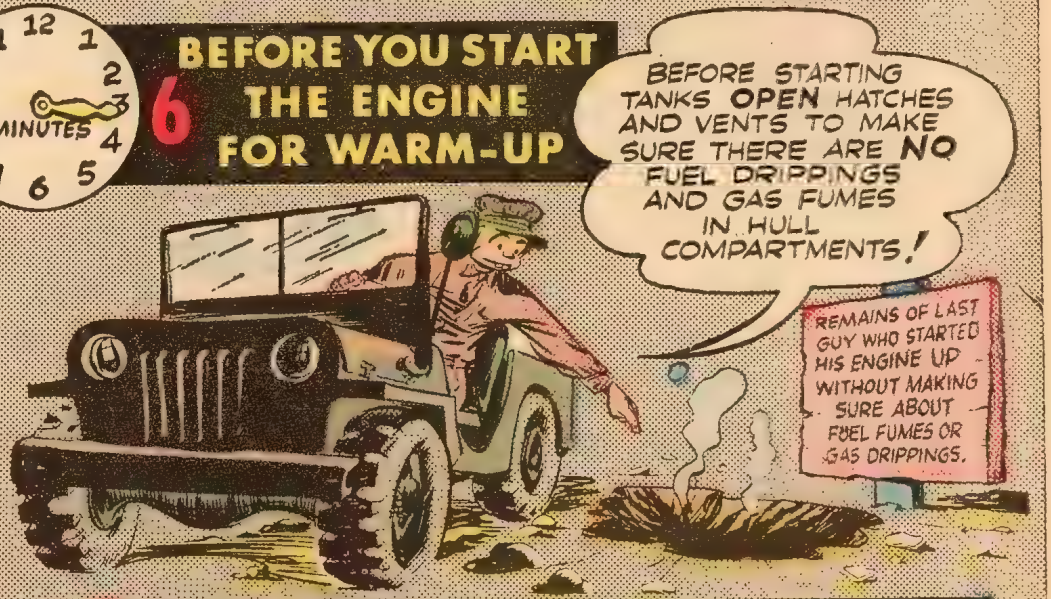
WINDOWS CLEAN? ANY BROKEN GLASS, FRAMES, OR BRACKETS?



WINDSHIELD WIPERS OK?

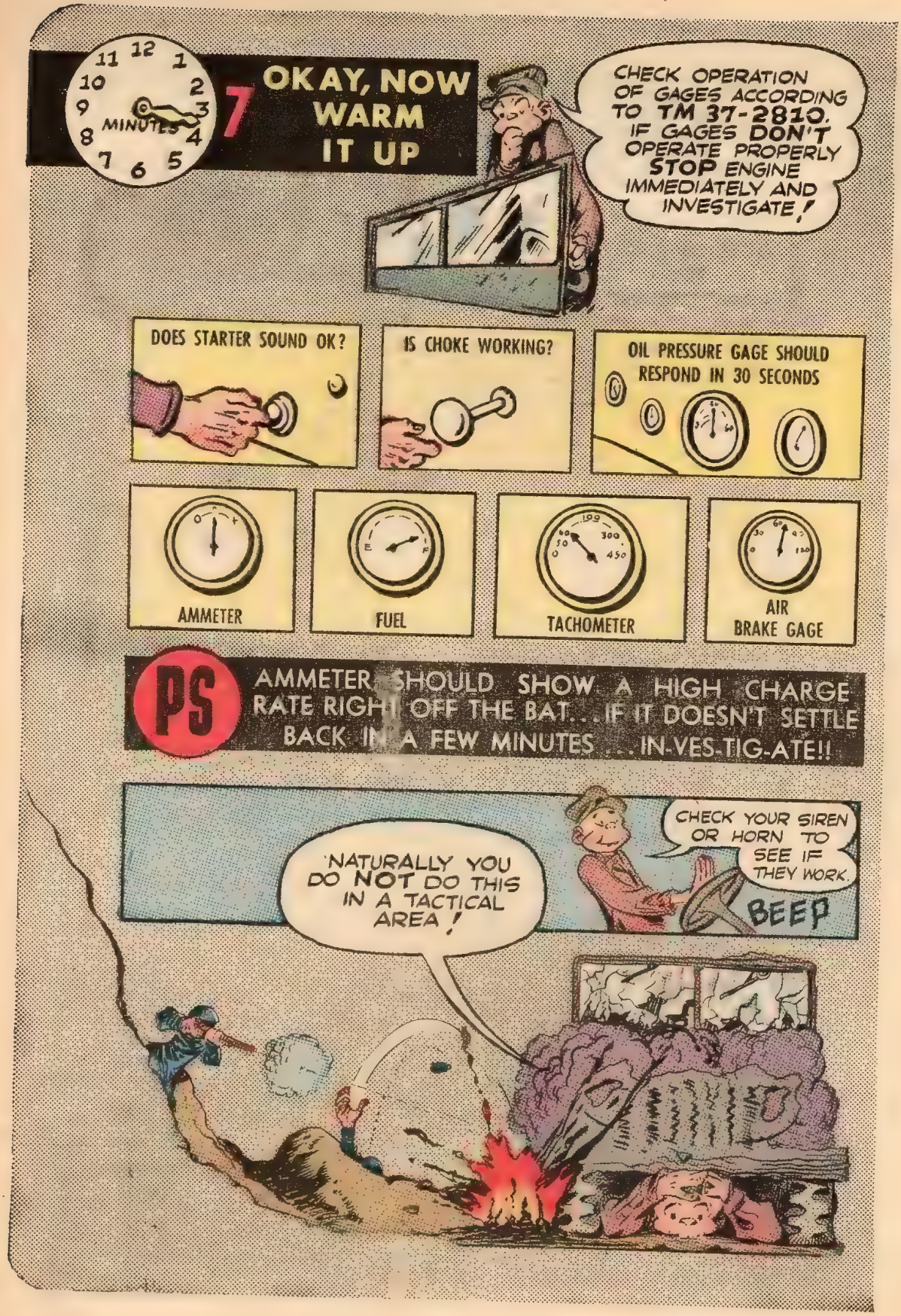


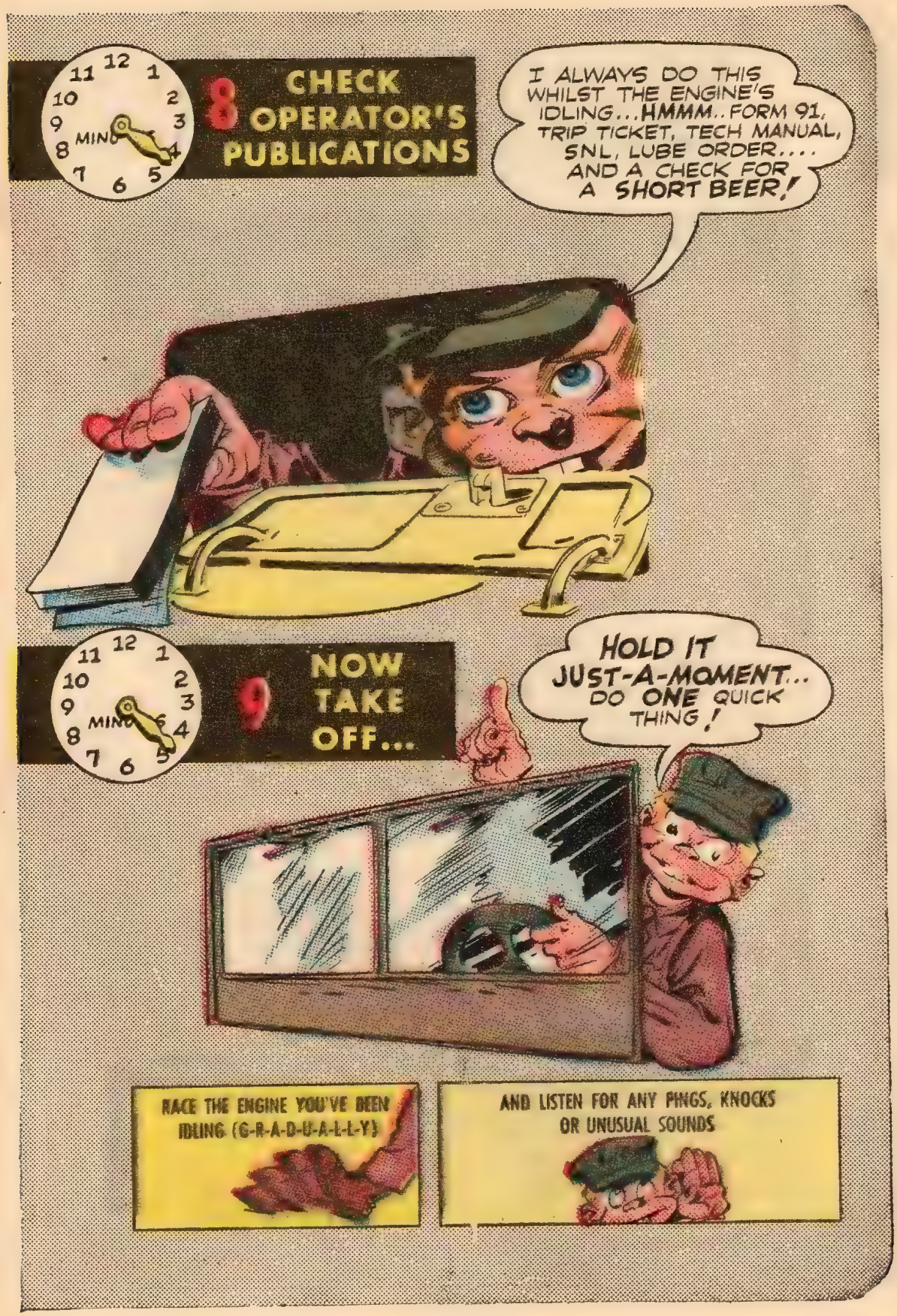
6 BEFORE YOU START THE ENGINE FOR WARM-UP

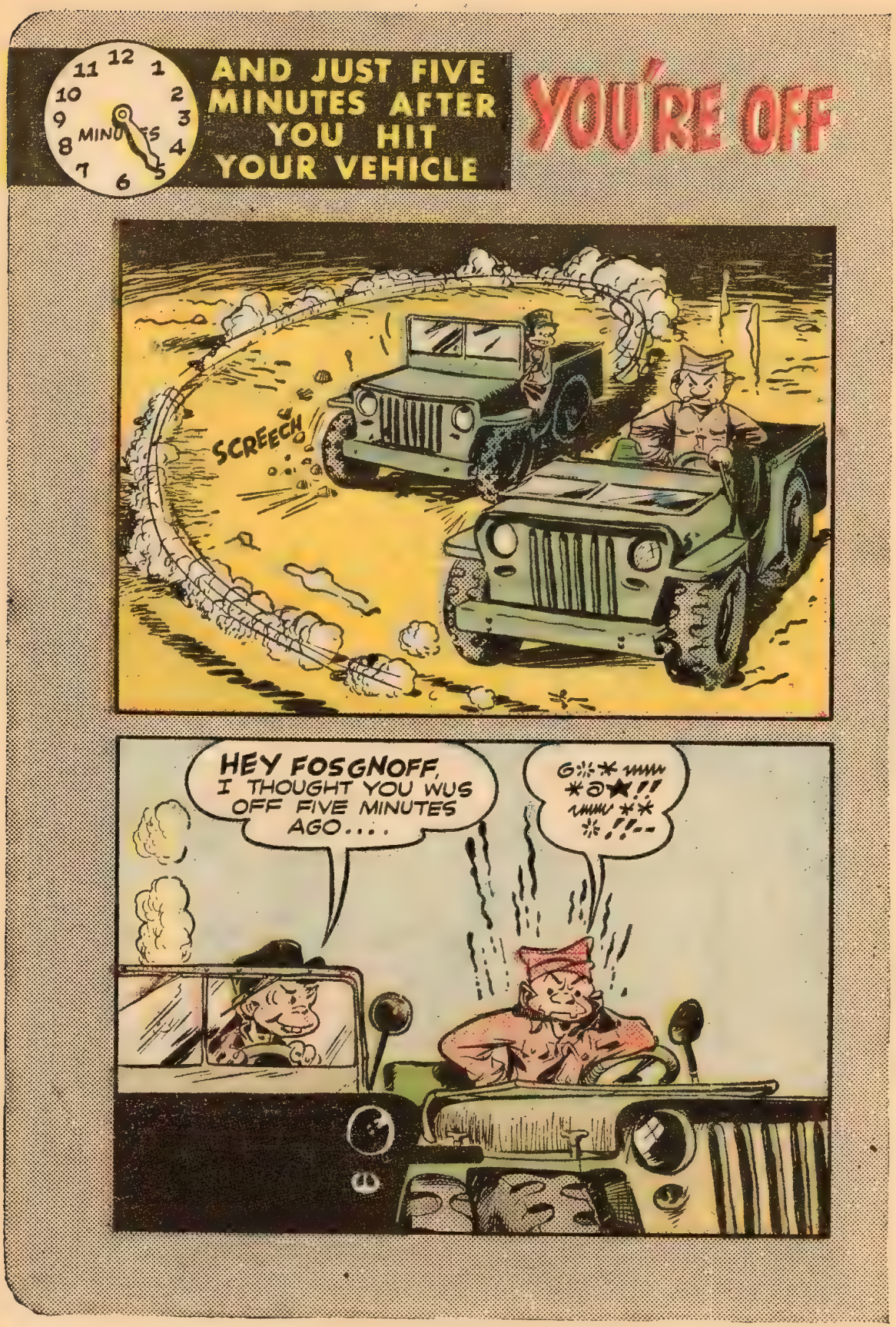

BEFORE STARTING TANKS OPEN HATCHES AND VENTS TO MAKE SURE THERE ARE NO FUEL DRIPPINGS AND GAS FUMES IN HULL COMPARTMENTS!
REMAINS OF LAST GUY WHO STARTED HIS ENGINE UP WITHOUT MAKING SURE ABOUT FUEL FUMES OR GAS DRIPPINGS.

IF RADIAL ENGINES

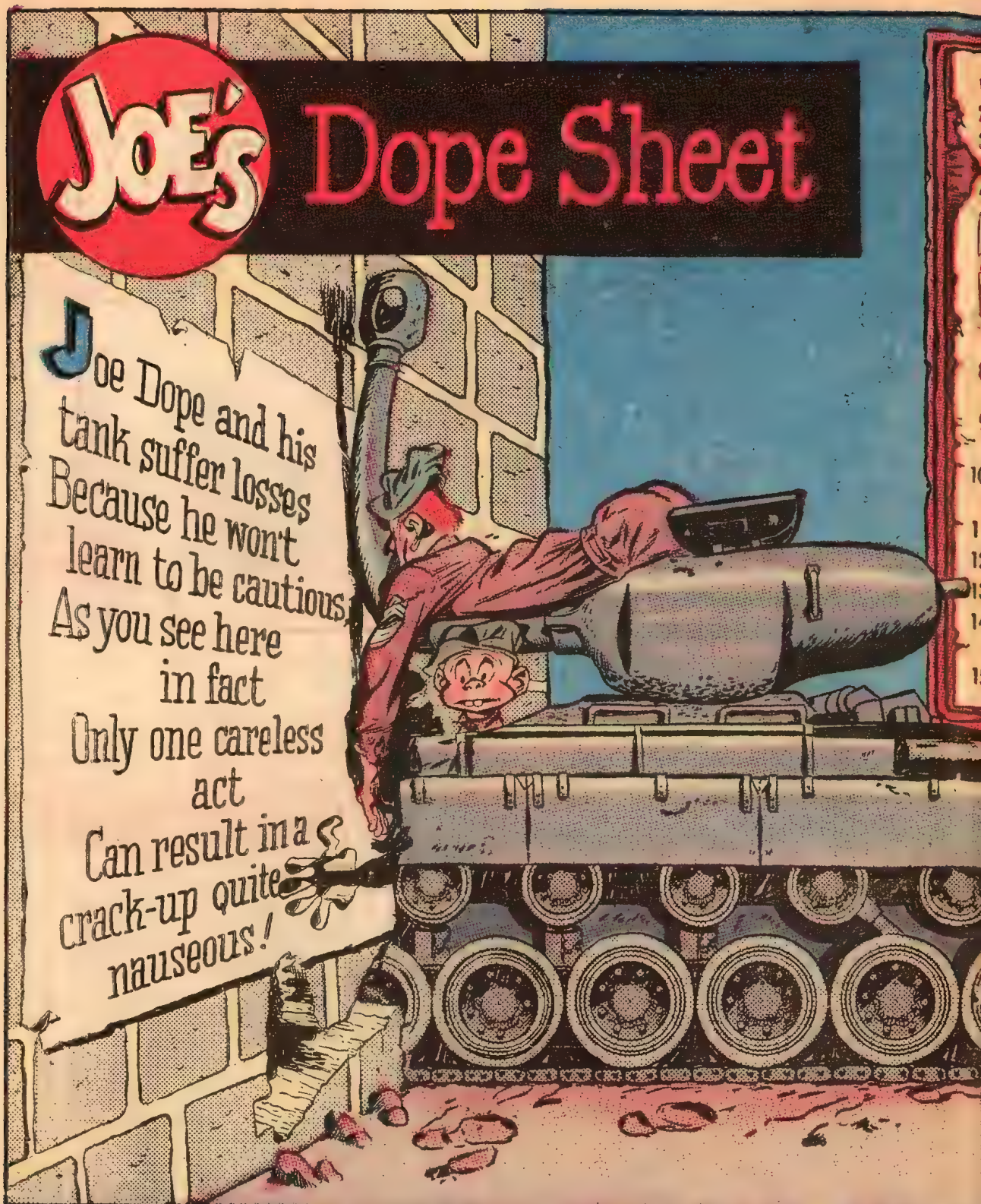
TEST FOR HYDRO-STATIC LOCK: BEFORE CLOSING MASTER BATTERY SWITCH, CRANK ENGINE TWO REVOLUTIONS BY HAND TO SEE IF FLUID IS PRESENT IN LOWER CYLINDERS. IF ENGINE WON'T TURN READILY, DRAIN FLUID.


7
OKAY, NOW WARM IT UP
MINUTES
CHECK OPERATION OF GAGES ACCORDING TO TM 37-2810. IF GAGES DON'T OPERATE PROPERLY STOP ENGINE IMMEDIATELY AND INVESTIGATE!
DOES STARTER SOUND OK?
IS CHOKE WORKING?
OIL PRESSURE GAGE SHOULD RESPOND IN 30 SECONDS
AMMETER
FUEL
TACHOMETER
AIR BRAKE GAGE
PS
AMMETER SHOULD SHOW A HIGH CHARGE RATE RIGHT OFF THE BAT. . . IF IT DOESN'T SETTLE BACK IN A FEW MINUTES . . . IN-VES-TIG-ATE!!
CHECK YOUR SIREN OR HORN TO SEE IF THEY WORK.
BEEP
NATURALLY YOU DO NOT DO THIS IN A TACTICAL AREA!


8 CHECK OPERATOR'S PUBLICATIONS
I ALWAYS DO THIS WHILST THE ENGINE'S IDLING...HMMM..FORM 91, TRIP TICKET, TECH MANUAL, SNL, LUBE ORDER.... AND A CHECK FOR A SHORT BEER!
9 NOW TAKE OFF...
HOLD IT JUST-A-MOMENT... DO ONE QUICK THING!
RACE THE ENGINE YOU'VE BEEN IDLING (G-R-A-D-U-A-L-L-Y)
AND LISTEN FOR ANY PINGS, KNOCKS OR UNUSUAL SOUNDS


AND JUST FIVE MINUTES AFTER YOU HIT YOUR VEHICLE
YOU'RE OFF
SCREECH
HEY FOSGNOFF, I THOUGHT YOU WUS OFF FIVE MINUTES AGO....

IT WON'T GO!!! AND I'M TRYIN' TO FIGGER IT OUT!!!
...AND DON'T GIMME THAT CHICKEN POOP ABOUT PRE-OPERATIONAL CHECK... I AIN'T GONNE DO IT THE G.I. WAY!
OKAY, OKAY, BUT Y'WANNA KNOW WHY IT WON'T GO...
YEH, BIG SHOT, WHY??
SOMEONE SWIPED YOUR ENGINE...


JOE'S
Dope Sheet
Joe Dope and his tank suffer losses Because he won't learn to be cautious As you see here in fact Only one careless act Can result in a crack-up quite nauseous!
WE HAVE THE WORLD'S BEST EQ

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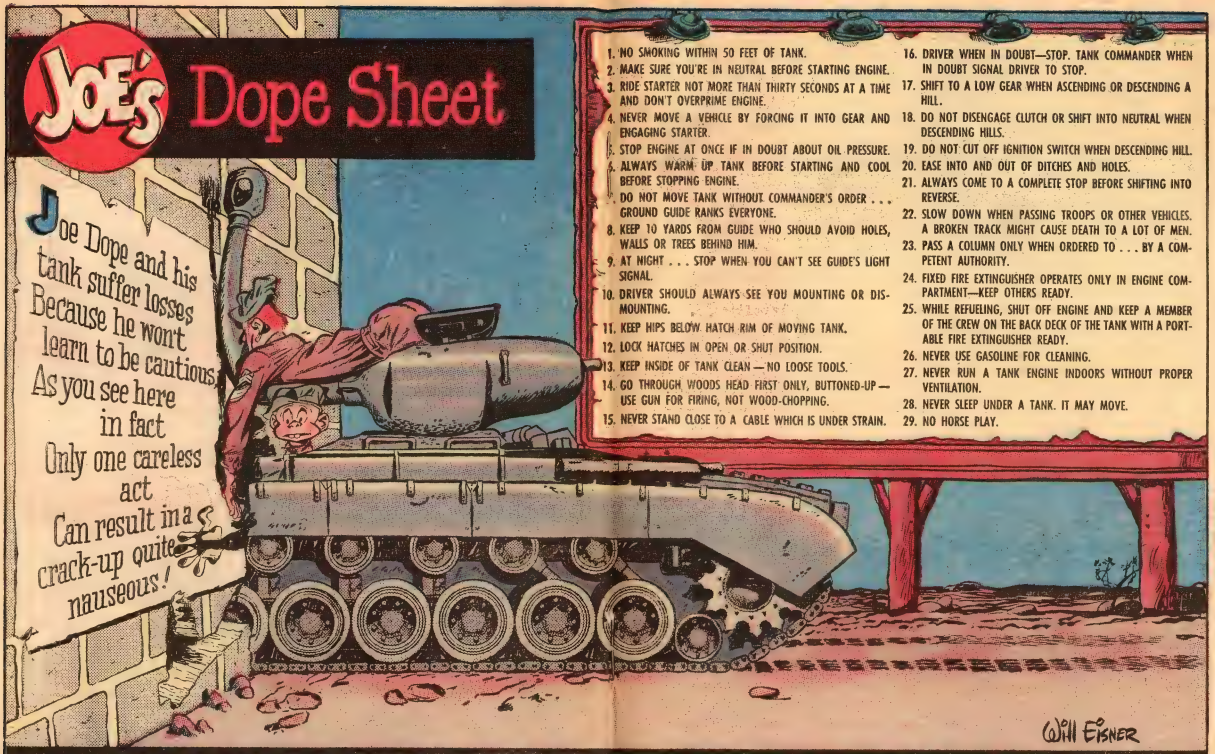
JOE'S Dope Sheet
Joe Dope and his tank suffer losses Because he won't learn to be cautious. As you see here in fact Only one careless act Can result in a crack-up quite nauseous!
1. NO SMOKING WITHIN 50 FEET OF TANK.
2. MAKE SURE YOU'RE IN NEUTRAL BEFORE STARTING ENGINE.
3. RIDE STARTER NOT MORE THAN THIRTY SECONDS AT A TIME AND DON'T OVERPRIME ENGINE.
4. NEVER MOVE A VEHICLE BY FORCING IT INTO GEAR AND ENGAGING STARTER.
5. STOP ENGINE AT ONCE IF IN DOUBT ABOUT OIL PRESSURE.
6. ALWAYS WARM UP TANK BEFORE STARTING AND COOL BEFORE STOPPING ENGINE.
7. DO NOT MOVE TANK WITHOUT COMMANDER'S ORDER . . . GROUND GUIDE RANKS EVERYONE.
8. KEEP 10 YARDS FROM GUIDE WHO SHOULD AVOID HOLES, WALLS OR TREES BEHIND HIM.
9. AT NIGHT . . . STOP WHEN YOU CAN'T SEE GUIDE'S LIGHT SIGNAL.
10. DRIVER SHOULD ALWAYS SEE YOU MOUNTING OR DISMOUNTING.
11. KEEP HIPS BELOW HATCH RIM OF MOVING TANK.
12. LOCK HATCHES IN OPEN OR SHUT POSITION.
13. KEEP INSIDE OF TANK CLEAN — NO LOOSE TOOLS.
14. GO THROUGH WOODS HEAD FIRST ONLY, BUTTONED-UP — USE GUN FOR FIRING, NOT WOOD-CHOPPING.
15. NEVER STAND CLOSE TO A CABLE WHICH IS UNDER STRAIN.
16. DRIVER WHEN IN DOUBT—STOP. TANK COMMANDER WHEN IN DOUBT SIGNAL DRIVER TO STOP.
17. SHIFT TO A LOW GEAR WHEN ASCENDING OR DESCENDING A HILL.
18. DO NOT DISENGAGE CLUTCH OR SHIFT INTO NEUTRAL WHEN DESCENDING HILLS.
19. DO NOT CUT OFF IGNITION SWITCH WHEN DESCENDING HILL.
20. EASE INTO AND OUT OF DITCHES AND HOLES.
21. ALWAYS COME TO A COMPLETE STOP BEFORE SHIFTING INTO REVERSE.
22. SLOW DOWN WHEN PASSING TROOPS OR OTHER VEHICLES. A BROKEN TRACK MIGHT CAUSE DEATH TO A LOT OF MEN.
23. PASS A COLUMN ONLY WHEN ORDERED TO . . . BY A COMPETENT AUTHORITY.
24. FIXED FIRE EXTINGUISHER OPERATES ONLY IN ENGINE COMPARTMENT—KEEP OTHERS READY.
25. WHILE REFUELING, SHUT OFF ENGINE AND KEEP A MEMBER OF THE CREW ON THE BACK DECK OF THE TANK WITH A PORTABLE FIRE EXTINGUISHER READY.
26. NEVER USE GASOLINE FOR CLEANING.
27. NEVER RUN A TANK ENGINE INDOORS WITHOUT PROPER VENTILATION.
28. NEVER SLEEP UNDER A TANK. IT MAY MOVE.
29. NO HORSE PLAY.
WILL EISNER
WE HAVE THE WORLD'S BEST EQUIPMENT... Take care of it

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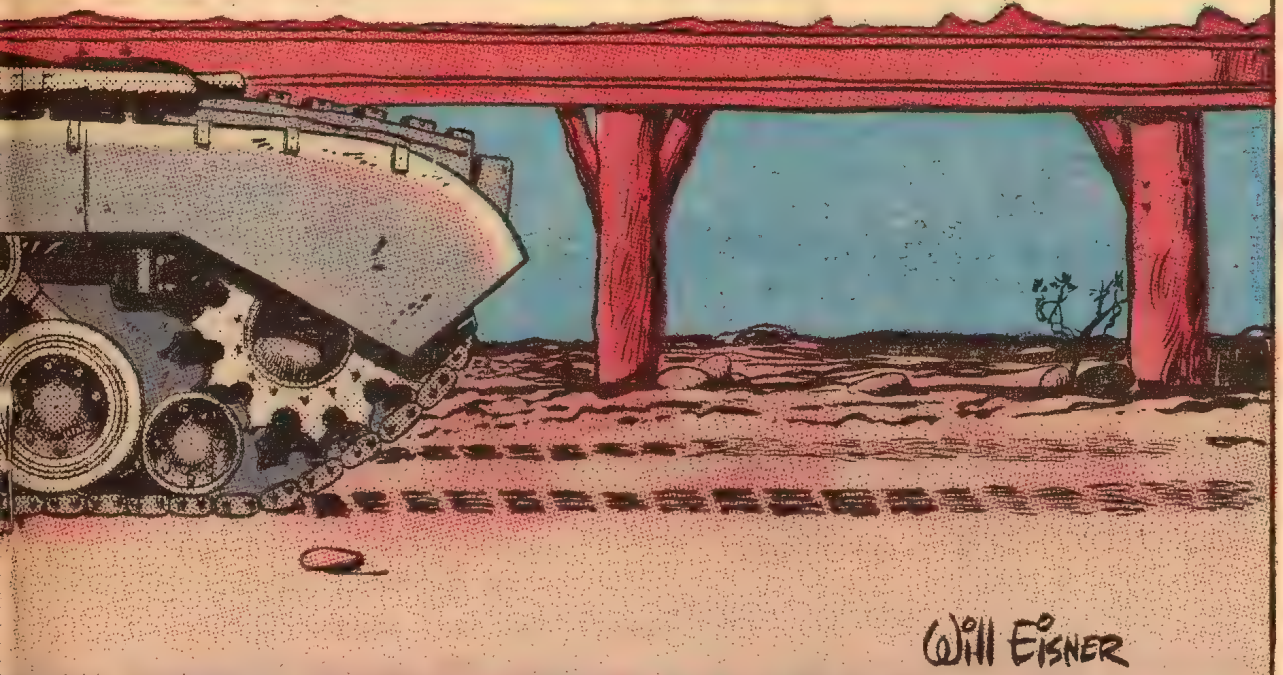
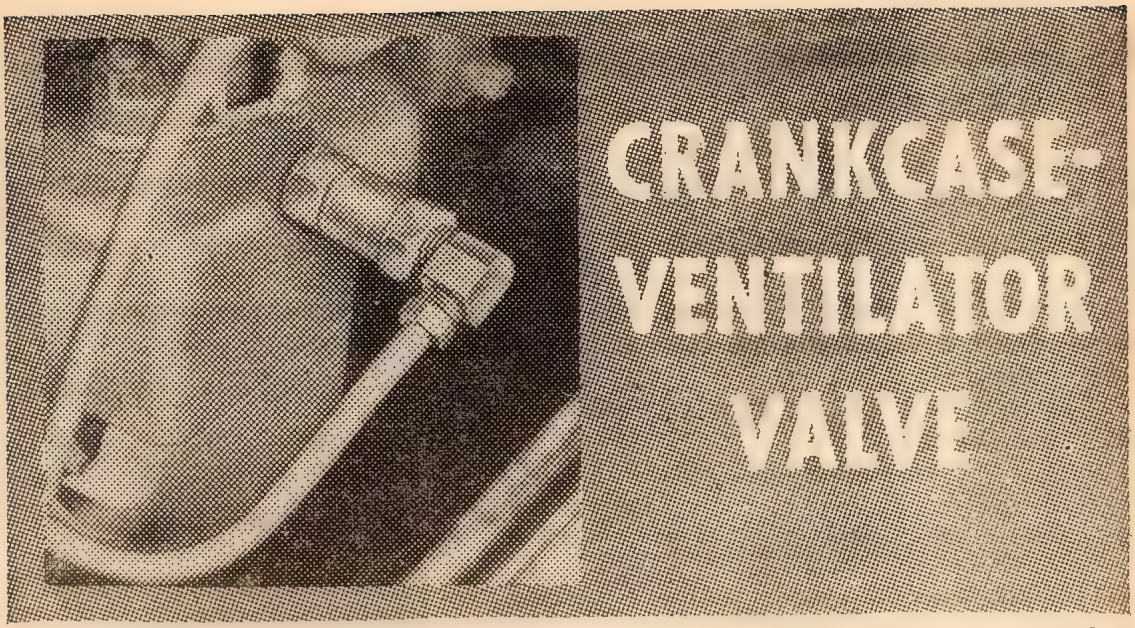


Will Eisner

UIPMENT . . . Take care of it



CRANKCASE-VENTILATOR VALVE

The crankcase ventilator-valve, a complete unit found on most War II-model engines, is no bigger around than maybe three cigarets and a couple of kitchen matches, and barely as long. In fact, the crankcase ventilator-valve often isn't found at all, and is neglected more than otherwise.

The manually-controlled valves like on the M34 breather system, were described on Page 96, PS#3, and you learned about the harm that could come to the engine if you forgot to open them after underwater operation. (A similar, hand-controlled valve is used on the M38, ¼-ton.)

An unventilated crankcase on older-type vehicles will also suffer from sludging and corrosion when the ventilating valves aren't working for any reason, and the valves don't have manual controls of any kind.

This little ventilator valve's job is to scavenge the carbon and sludge-forming vapors from the crankcase. The valve is spring-loaded, and closes when the engine is idling because the manifold vacuum is high. When the engine speed is increased, the manifold vacuum is lowered; the valve opens and lets clean air be drawn from the air-cleaner tube (through the engine oil-filler-pipe and crankcase, and then through the ventilator tube and valve) to ventilate the crankcase.

Because it picks up muck and clogs itself in doing its work, you've got to clean it to keep it opening and closing—otherwise it will conk out and so will the engine. For instance, if the valve fails to seat good, the engine will act like it had a leaky intake-manifold, and may have you scratching to try and find the trouble.

Remove the ventilator valve from the engine and hold it snug in a vise to remove the top. Clean the valve and valve seat with solvent, make sure the spring operates freely, and reassemble the valve. Check and clean all connecting tubes or lines. Do this little job every 10,000 miles . . . or more often, when vehicles are operated a lot at low speeds or at low engine-temperatures.

MORE GOOD STUFF ON THE M38 ¼-TON

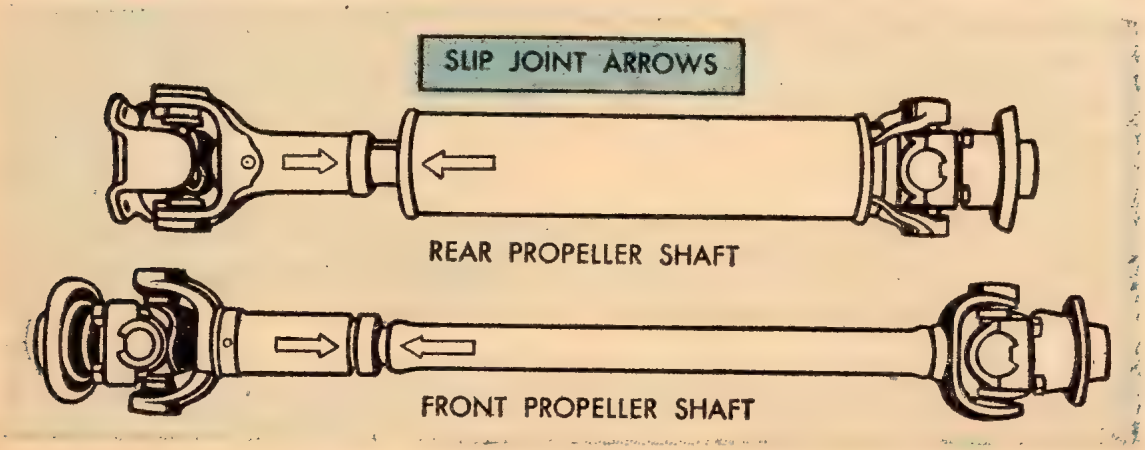
Our M38 which is most often out there punching like a scrapping lightweight, can sometimes behave like a spoiled babe. Yet, those little nuisances that irritate, and make you forget what mama said about using swear words, usually have solutions. Just snuggle up close to your problem, try a couple of these tricks, and maybe you'll find your answer.

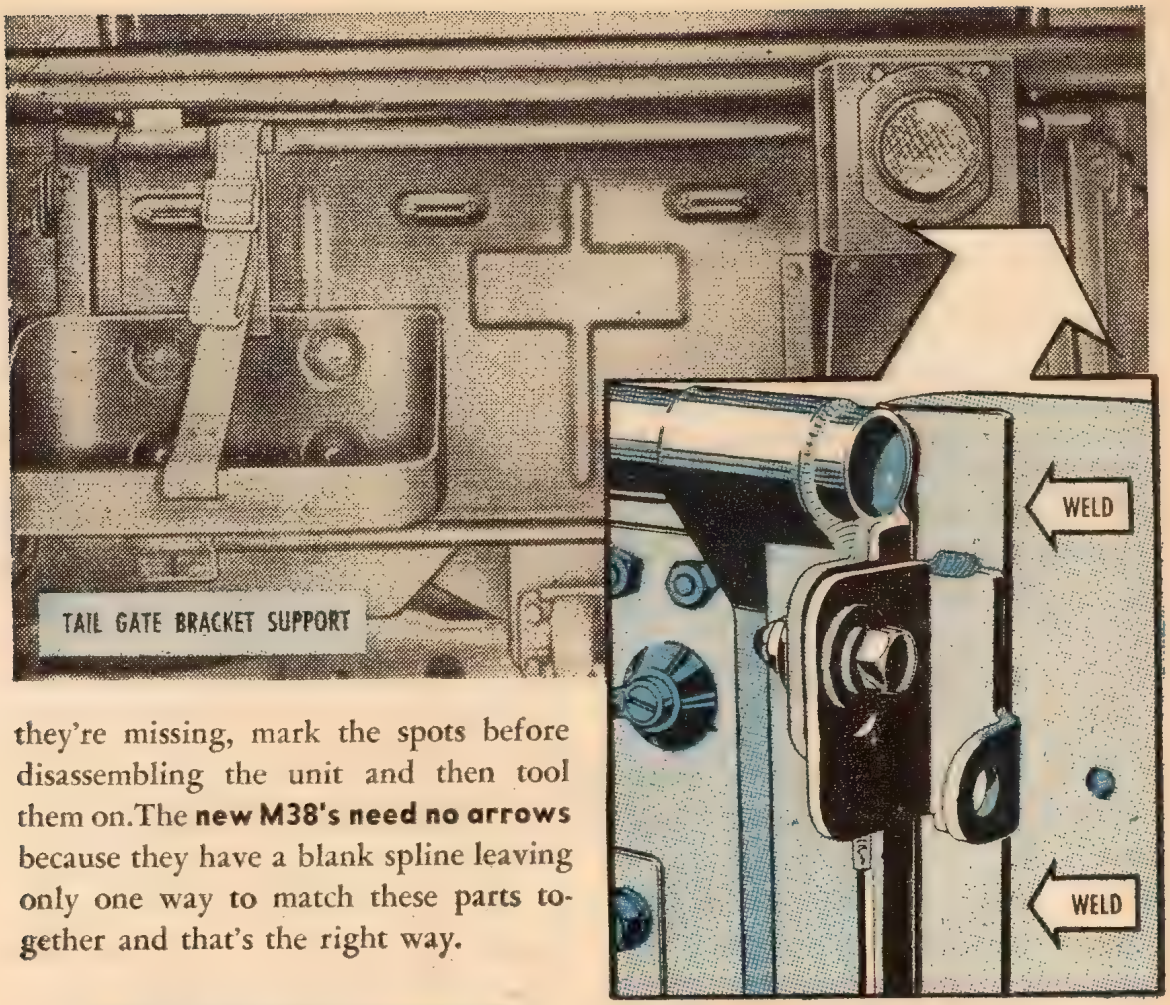
OIL LINE SLACK

If you're afraid of kinking your oil line with the JULY issue suggestion of turning the oil filter one stud to stop the line from flopping against the manifold, here's a couple of more ideas. For one you can take the slack out of the line by turning the clip attached to the timing gear cover. When the closed part of the clip faces the center of the engine, you've got what you want. In fact, vehicles now in production are rigged this way. Another idea is to pull the line up through the bracket tight and then wind a few rounds of tape to hold it. You'll like this one only if you aren't against tape as an interior decoration. Try these for size.

SLIP JOINT ARROWS

Those two arrows on the front and rear propeller-shafts on the old MB Jeeps are supposed to point out where the splined slip-joints are lined up. Sometimes those arrows aren't shooting at each other and sometimes they aren't there at all. When these joints aren't happily mated, it causes a whipping-vibration of the shaft that damages the universal joint. To set things straight, check those arrows and if





they're missing, mark the spots before disassembling the unit and then tool them on. The **new M38's need no arrows** because they have a blank spline leaving only one way to match these parts together and that's the right way.

WELD BRACKET SUPPORT

When you see some jeepster with his hunky dragging, it's probably because the anchor-bracket support of his tail gate broke loose. You too can know this shame. The support is connected only at the top and often breaks loose, especially on the right side where the spare tire hangs and bounces. To keep a tight hunky, all you gotta do is put some spot welds down the sides of the support, thereby hanging the tail tight to the chassis.

STEERING GEAR LUBRICANT

When you opened the steering gear housing you found the lubricant was a different color and consistency than that called for in WDLO's. PS nosied around and learned that the stuff the factory uses is of the waterproof variety while the lube-order lube isn't. This waterproof kind is cached for special purposes only, so use what's in the book and feel safe. When you need some grease in the housing, it's better to remove the factory lube than to mix the two because these lubes tend to separate if packed in the same unit.

TIGHTEN PACKING NUTS

When water seeps into your manifold through your windshield wiper when you're fording, or air into your gas line through your primer pump-handle,

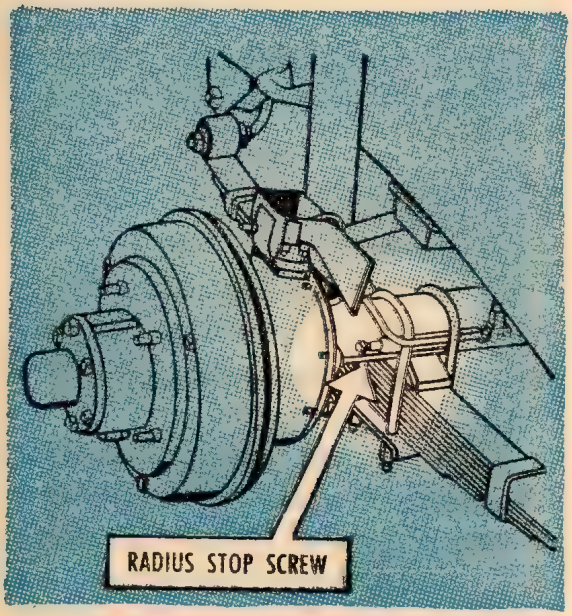
brother, your nuts are loose. You oughta keep the packing nuts tight on both these openings if you wanna swim up the opposite bank.

RADIUS STOP SCREWS

Should your vehicle rub its front wheels against the hold down brackets when you're making hard turns, it can be set straight pronto.

First check your wheel alignment. The fault may be there. If that's OK, then it's probably your turning-radius stop-screws that need adjusting. This contraption lies behind both sides of the front axle near the wheels and a little twist may do the trick. The TM calls for a maximum turning radius of 20 ft. for the right and 19 ft. for the left wheels of the vehicle.

If your turning angle is set at 23° from straight ahead to maximum turn, as you'll find in later production models, you should be safe.



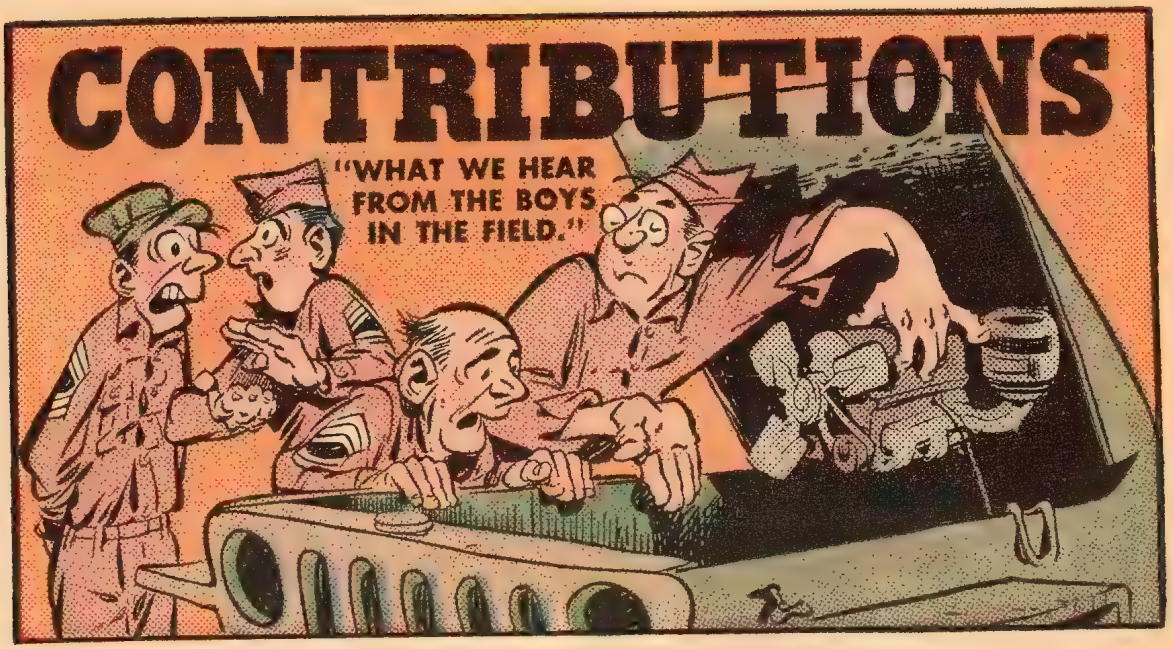
DOES YOUR CRANKCASE GET DILUTED?

A short snort of raw gas from your primer to start your M38 on nippy mornings (when you oughta be using your choke instead (may not turn out to be a Mickey Finn, but probably will give your engine a pretty bad hangover. Such carryings-on can damage your engine no end because of excessive crankcase dilution and might even get it headed for Engines Anonymous. So-o-o-o-o, to keep your new M38 engine outa the junkyard —use your choke in chilly weather **only.** Lay off the primer except for the emergency purposes it's meant for.

That little gadget is intended for use in sub-zero weather (repeat: **sub**-zero weather) when the choke doesn't feed the cylinders a rich enough mixture because the motor doesn't turn over fast enough.

Another thing that'll wind up in crankcase dilution is improper seating of the primer check-valve, which allows raw gas to be drawn into the engine. Ordinarily if the valve is seated correctly when new it should continue to carry on for the life of the vehicle. But just let it get seated wrong and things begin to happen. Slight leakage at the check valve may scarcely be noticed. Probably first thing you know you'll be using an awful lot of gas. A badly seating check valve will make the engine act like the carburetor choke valve was partially closed.

To check the valve, disconnect the line from the primer to the manifold at the primer and with just enough pressure in the fuel tank to force the gas up into the primer, take a look and see for yourself whether or not there is any gas leaking through the primer.



REVIVED SHOCK ABSORBERS

Dear Editor,

I've found that we're able to get a few more months service out of shock absorber links by loosening the tapered shafts and giving them a ¼ turn to expose new wearing surface on the pin to the up and down motion.

The system works good on about 75% of all shock absorber links on GMC 2½-ton and the Dodge ¾ and 1½-ton vehicles.

Sgt W. B. Anderson
Service Co 2d A/C Regt
c/o PM New York, N. Y.

BUMPER LUGS

Dear Editor,

During our several months of recovery operations in Korea we have found that many of our jobs have involved recovering tanks practically buried in rice paddies. Here, even though we have applied every mechanical device available, the torque on the line has pulled the bumper lugs out of their seatings, sometimes causing damage to other mechanical features of the vehicles. So our idea was to cut holes through the bumper and then improvise special bumper lugs that could be passed through the holes and bolted directly to the side rail of the frame. In this way the pull comes on the strongest part of the frame.

1st Lt Leroy Ingram
57th Ordnance Recovery Company

STEEL-WOOL HONE

Dear Editor,

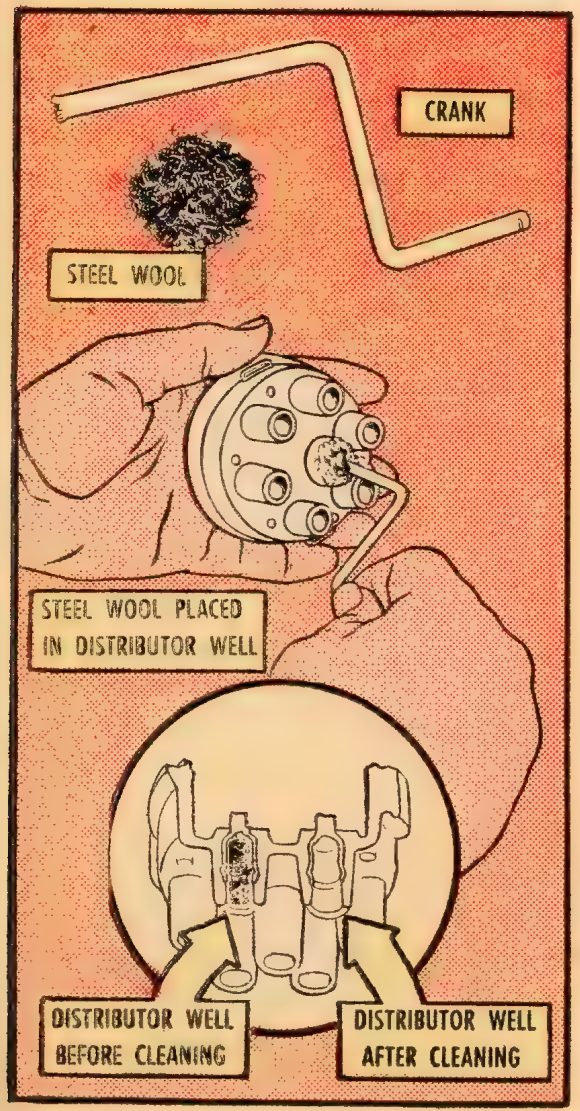
Often the wells on distributor caps corrode for one reason or another. Here's our method of putting the caps back into service.

You'll need some solvent, a small ball of steel wool and a crank devised from an eight-inch piece of 3/16" or ⅛" welding rod with small prongs at one end made with a hacksaw. (A short straight piece of welding rod with prongs at one end chucked in an electric drill, however, works much faster.)

First clean the distributor cap on the outside with solvent. Either let this dry naturally or hasten the drying with air. Make sure there are no cracks in the body and also that there are no carbon cracks between posts.

Then place the ball of steel wool in the distributor well, insert the prongs of the crank tool in the steel wool and turn it to remove the corrosion inside the distributor well. Neat? (See Fig).

SFC W. C. Rowekamp and
SFC R. H. Fortin,
9301 TSU ORD (ORD BD) APG, Md.



LUBE FREES GMC BRAKES

Dear Editor,

Mechanics that have difficulty adjusting brakes on the 2½-ton, 6x6 due to frozen adjusting screws in end covers of wheel cylinders and rusted pin and washer assemblies, should remember to lubricate and free up these items during a semi or monthly service. A little oil here will go a long way and save time.

Sgt. Stanley A. Niemiec
Service Co 2d A/C (USCON)
c/o PM New York, N. Y.

(Ed Note—You're OIL right, Sergeant.)

2½-TON DUMP SEALSAVER

Dear Editor,

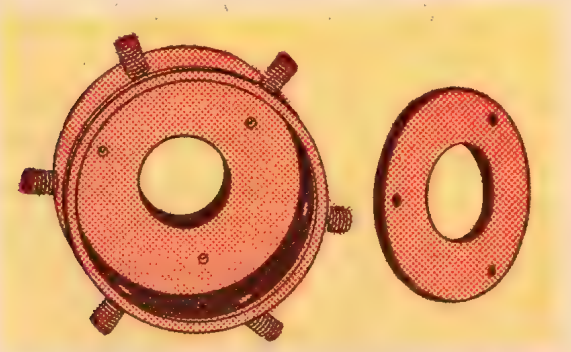
Here's a fix we used on the GMC, 2½-ton, 6x6 cargo dump trucks equipped with Anthony Hoists. These trucks had been giving us a lot of trouble with the seals blowing out (or at least coming out) in the dump body hoist-cylinder. Then an auto mechanic at Sierra Ordnance Depot came through with an idea that not only prevents the standard-equipment seal from coming out, but also keeps the piston shaft clean, in this way making the original equipment seal last longer. The machine shop at the Sierra Ordnance Depot developed the idea and it worked out very successfully. Here's how you do it:

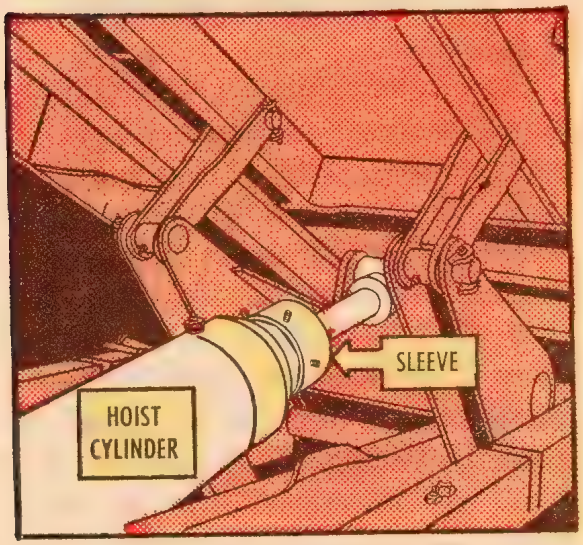
Make a sleeve to go over the end of the hoist-cylinder with a plate on the back end of the sleeve to restrict the movement or blowing out of the original seal. Also install another seal to the forward end of the sleeve (this seal to be installed in the opposite direction to the original seal). Secure the sleeve to

the hoist cylinder with six diametrically opposed allen screws as shown in attached photographs.

Forrest L. Gibson, OCT
[illegible] Ordnance Depot

(Ed Note—The proof of the puddin' is in the eatin', we always say!)





M52 WINCH

Dear Editor,

Our first shipment of tractor 5-ton 6x6 M52 Diamond T's just arrived and already we got troubles.

Our biggest headache is the winch and believe me they are really tricky. Watch that lock pin when you are using the winch from the cab of your vehicle and be sure it isn't in its locked position.

And that dog or outside clutch, the first notch on your right of which is supposed to be neutral. You'll have to push that lever past the notch and as far as you can go to the right to reach that position.

Now we finally get to the operating lever. We advise putting a hinge affair on the floor to keep and make positive sure it's in neutral. If you notice there isn't a thing to keep you from knocking this lever in gear.

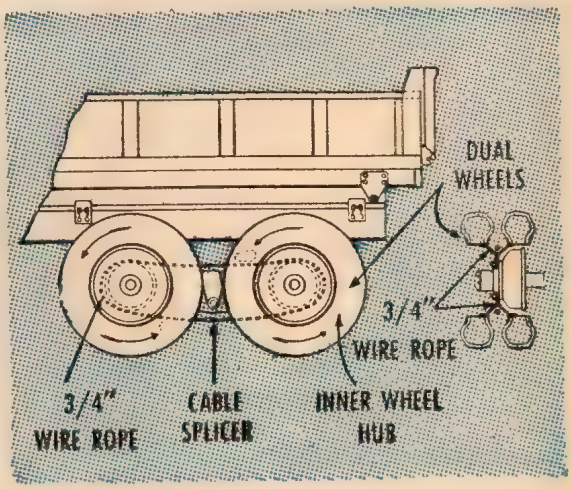
MSgt E. R. Wortz
Camp Atterbury, Indiana

MUCKRAKER

Dear Editor,

Here in Korea the mud will build up between the wheels on a 6x6 truck when operating at a slow speed, in this way reducing one's traction. To overcome this I have taken a discarded winch cable and run it around both sets of duals, clamping the ends together. The splice must be smooth and the loop tight enough so it won't chafe the sidewalls of the tires, but not so tight as to cut the wheels or interfere with changing them. The attached diagram will show what I mean.

Pvt Wayne E. Glover
San Francisco, Cal.



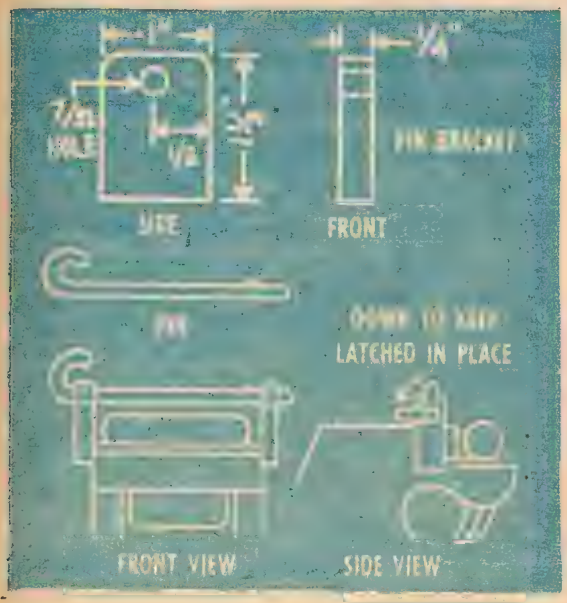
M51 TAIL-GATE LOCK

Dear Editor,

Failure of the locking device on the Marion dump-body tail-gate on the M51 5-ton International-Harvester dump gave us some trouble on this station until Cpl Robert H. Jones, Jr. and Sgt Louis Prescher of 398th Engineer Const Bn got their hack saw and welder together to cobble up a field fix that does the job.

As shown in the drawings, they made a small pin of 3/16" welding rod, and supported it by two ¼-inch-strap brackets welded to the gate latch. Turning the pin locks the gate. They put lump weld on the pin after it was assembled into the brackets so it can't fall out.

J. H. Morris, OCT
Ft. Leonard Wood, Mo.



RETRACTING-SPRING GET-UP

Dear Editor,

When you need a retracting spring (which pulls inward) and all you got are compression springs (which push outward), whatcha gonna do?

Just pick a compression spring of the right length and size, two pieces of stiff wire, like salvage choke cable or welding rods, and the rest is easy.

Bend the two pieces of wire as in (Fig. 1) and insert them in the compression spring as in (Fig. 2). There you got it. The loops in the wire sticking out at both ends of the spring may now be used for linkage.

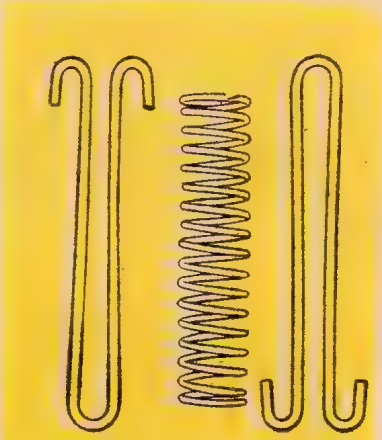


Fig. 1

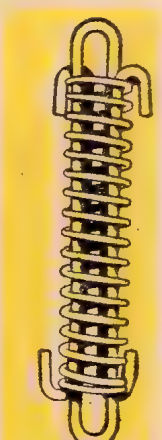


Fig. 2

An added feature of this contraption is that the linkage won't separate if the spring breaks. The coils of the spring will be held by the hooks at the ends of the bent wire.

Sgt R. H. Fortin
9301 TSU ORD (ORD BD) APG, Md.

BRAKE-PLUG TOOL

Dear Editor,

Don't want to contradict Sgt. M. V. Brown on his idea for removing the vent plug from GMC master cylinders to check the fluid level, but I've found the square end of the lug wrench fits the plug perfectly. All trucks have one of these wrenches.

Pvt. Wayne E. Glover
SUCO 17 Rct
San Francisco, Cal.

ENGINE OIL DIPSTICK

Maybe you've already puzzled over the fact that the oil dipstick reads like the crankcase is dry when you know darned well it can't be. The dipstick itself is off. It's a bit shorter than it could be, and won't touch oil if the oil's a little better than 5 quarts low. However —don't let this news go to your head.

It's true that with a 22 quart capacity the danger level ought to be around 10 quarts low—but since you're minus a crystal ball, you can't go assuming there's still enough oil in the crankcase even when the dipstick does come out dry. And while you shouldn't have to stop operating at 5 quarts low and a dry stick, you can't go running around in the dark, either.

What you **could** do is weld about 1½" more on the end of the stick to make it longer, and then calibrate your own stick at an oil change. Mark the longer stick at the level of oil after you've added the first 12 quarts. That mark will be the level of 10 quarts low—and danger. Then add the rest of the oil, a quart at a time, and keep marking the stick. After this, there'll be no more guess-work.

TRANSMISSION OIL-LEVEL

In case you don't already know it—the transmission oil has been reduced by 6 pints. It's now 18 pints without power take-off, and 22 pints with power take-off.

This was a necessary change because oil was dripping along the input shaft into the clutch housing when the truck

was off level. Like when it rolled down a hill, you'd lose a pint or so of oil into the clutch. Oil in the clutch housing, of course, means no more clutch. So it's with good reason that you'll want to watch the transmission oil level.

How can you watch the new level through the old fill-hole? That, you say would be impossible, and you are right. Naught else to do but make a new inspection hole.

Use a 7/16" drill for the hole, drill about 2" over from the center of the fill-hole (toward rear), and 5⅝" up from the center of the drain hole. Thread it with a ¼" #18 N. P. T. R. tap, and cork it with a ¼" Square Head Pipe Plug (H006-0283905) (Fig. 1).

After you've got the new hole, and this is important, **drain** and **flush** the transmission to wash out the chips and slivers of metal that fell down inside.

OIL-GAGE SENDING-UNIT

Be on the lookout for a change in the position of the oil-gage sending-unit — the manufacturer's men will be buzzing around and changing the units from their horizontal position to a vertical position. They don't last as long laying on their sides as they will standing upright. Position in life is everything.

The change is made by adding an elbow and a nipple to the present set-up (Fig. 2). Keep a check on yours and see that it gets caught soon.

DIESELING ACTION

How about it, when the ignition's switched off and the engine keeps on firing her fool head off—not in good order, but popping and coughing all over the place? It's called dieseling action. And if it weren't for the de-gassers on tanks, they'd act up the same way.

You've got a big engine, here. The cylinder walls are lots thicker, the cylinders heavier than you'll find on lighter trucks. The thicker the metal, the more heat it holds and the cooling system doesn't always get a chance to carry it off before you turn that switch. If you've been driving hard and all of a sudden shut her off, there's enough heat left to ignite the gas, and there you are: diesel-

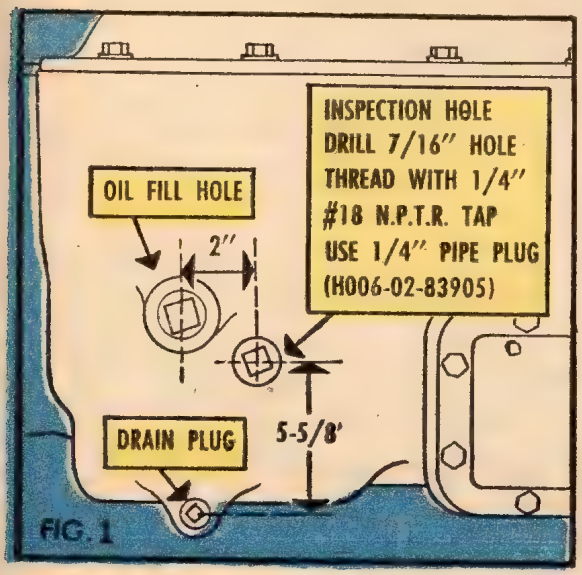
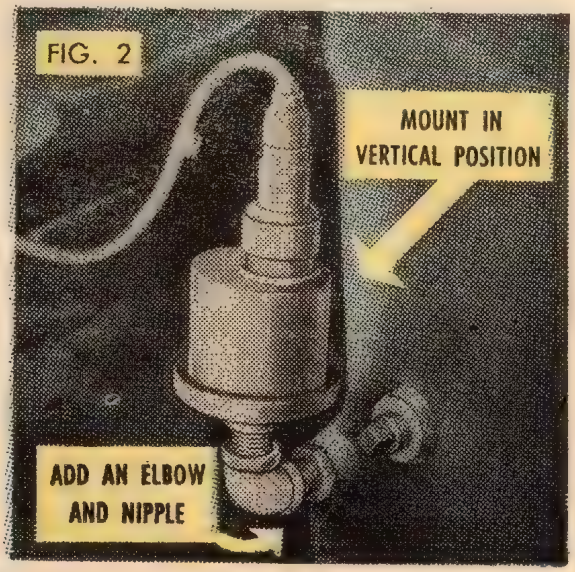


FIG. 1



ing action.

Let the engine idle for a few minutes after a tough haul, before you shut it off. This dieseling action is not true firing, it'll be firing with the piston in any which position, and that's not good as you know. So idle a while, before you switch the switch.

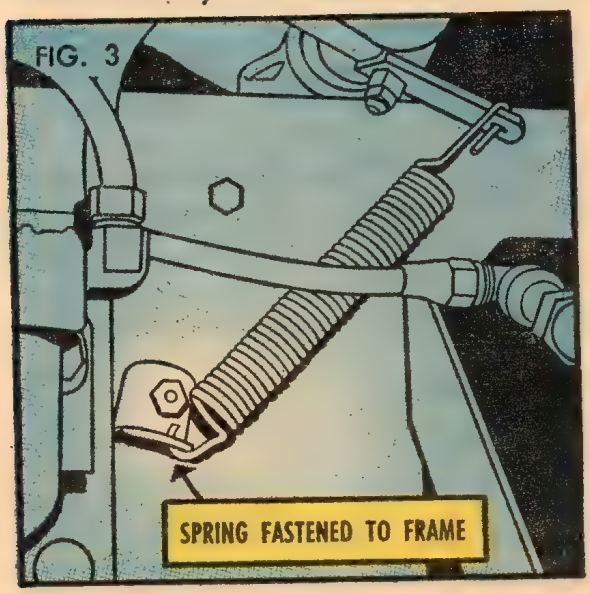
CLUTCH-RETURN SPRING

A lot of these 5-tons are running around with the clutch-return spring hooked on the tool-box bracket. That's bad. The bracket isn't strong enough to withstand the pull and it's bending like with pains—what happens to the spring action in this case, shouldn't. And what happens when the bracket breaks, is that you'll be reaching down and pulling up the clutch pedal with your two hands while you steer with your third.

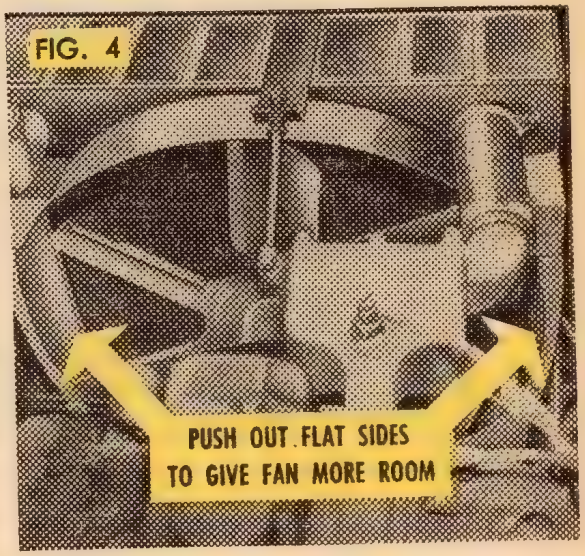
Fasten the spring in a hole in the frame or frame cross-member (Fig. 3) instead of on the tool-box bracket. The frame can take it and the spring action will be good.

FAN-SHROUD INTERFERENCE

How are your fan blades getting along with their shroud? If you've been driving over ground that twists the chassis like a hula-dancer—then the fan-to-shroud-clearance cozies up and makes an awful racket.



The fan shroud isn't circular like the path the fan makes: The shroud has sort of flat-looking sides (Fig. 4). And when the trucks chassis gets twisted all over the place, the shroud goes with it and the fan blades strike the flat sides.



Now, instead of trying to stop this racket by working on the fan and maybe fouling-up the fan's balance—work on the shroud. Push out those flat sides and give the fan more room.

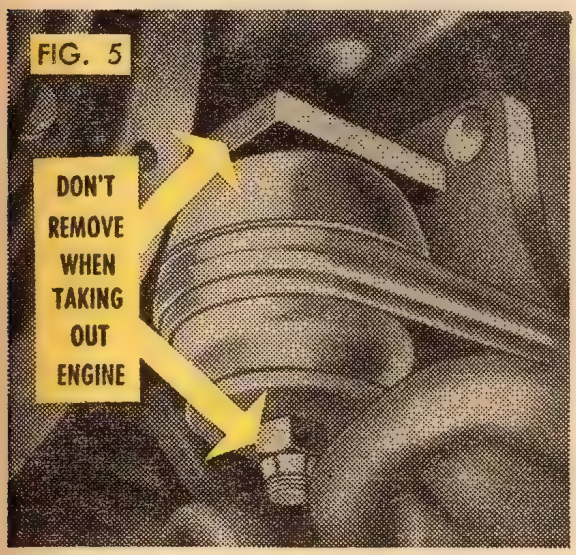
ENGINE REMOVAL

When you've got to remove the engine on the M41 and M51, remove just the engine. Leave the rear mounting-plate where it is. Take the rear mounting-nuts and bolts out of the engine—not those that fasten the plate (Fig. 5).

When the plate and rubber biscuit get taken along with the engine, the wiring harness gets pinched against the upper flange of the frame side-rail. This

is at the point where the wiring harness crosses the frame on its way to the instrument panel.

And another something to look out for is the wiring on the headlights. When the headlights are mounted in their lower position—without winch—there's an extra length of wire allowed (enough to let the headlights get raised to the higher mounting) which loops



around in the breeze. It's easy to see that this flopping wire could get snagged when the engine's hauled out. You just have to know about it, and keep at least two eyes open.

GOVERNOR SCREWS

It's not **you** who can't tighten up those governor mounting-screws—it's the screws themselves that won't stay tight. A lock-washer isn't used since you can't keep a water-proofed seal if you stick in a lock-washer.

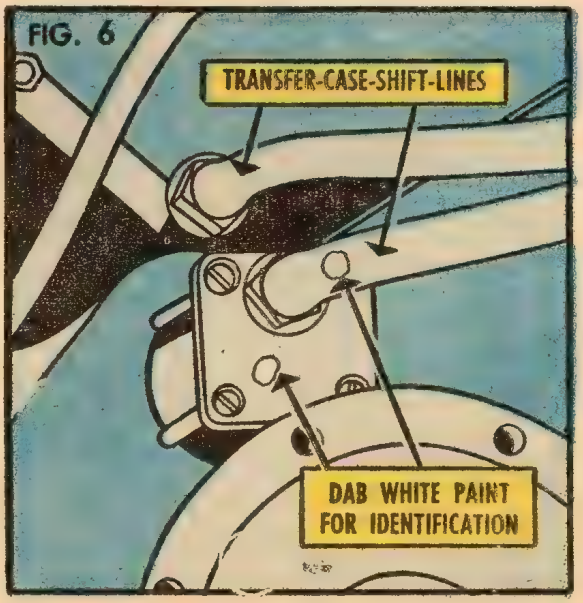
They're testing a new screw for the governors, it's got a block of nylon in it that'll thread itself in the screwing operation and really lock the screw tight. In the meantime, though, you'll be in a bad way if the mounting-screws aren't kept tight because the governor'll bounce loose. The screws will just have to be tightened . . . often. Which means that first you'll have to take the cover off the governor. It isn't the cover screws that let the governor work loose, but the two mounting-screws **under the cover.**

TRANSFER-CASE SHIFT-LINES

The transfer-case shift-lines (Fig. 6) on these jobs are identical right now. They'll be changed in production, and the length of each will vary enough so that switching them when they're being connected will be impossible. But on **your** 5-ton, the odds are against you getting them hooked up the way they should be.

If you're real experienced at handling this heavy truck, you'll know immediately that something's wrong if the shift-lines have been switched. The tires scuff—and you feel a noticeable drag. It's easy, though, not to be that sensitive to performance.

One way you can be sure of the right



hook-up is to check it. Jack up one front wheel (the other front wheel must be on the ground). Make sure you've got air pressure—then with the main box in a forward gear, the jacked wheel should turn freely forward. You shouldn't be able to spin it backward. Then shift to the reverse gear. With the gears in reverse, you'll be able to rotate the wheel backward but not forward.

Once you know that the lines are connected right—how about marking them? Put a dab of white paint or a neon flasher or something on one set of lines.

EMERGENCY BRAKE

These 5-tons have emergency brakes that truly are emergency brakes. They are so good that forgetting to release the emergency before taking off like a big-eared bird will set fire to the truck. It has happened.

Emergency brakes ordinarily have a shoe that circles the brake drum and pressures it all the way around. But these brakes work with two short shoes —one outside the drum, one inside the drum (Fig. 7). And what happens is that so much heat is built up in this one section that it fuses the metal.

You can do darn near as good a job of demolition by riding with the emergency brake on, as anything your TM could give you on destruction of material. Only in this case, you are your own enemy.

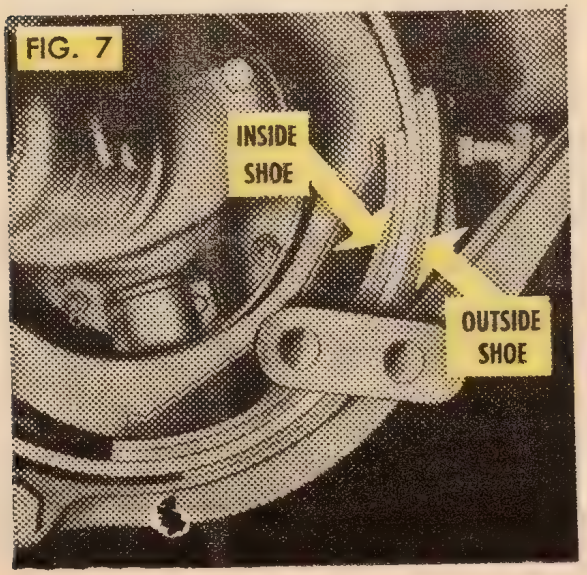
WINDSHIELD WIPERS

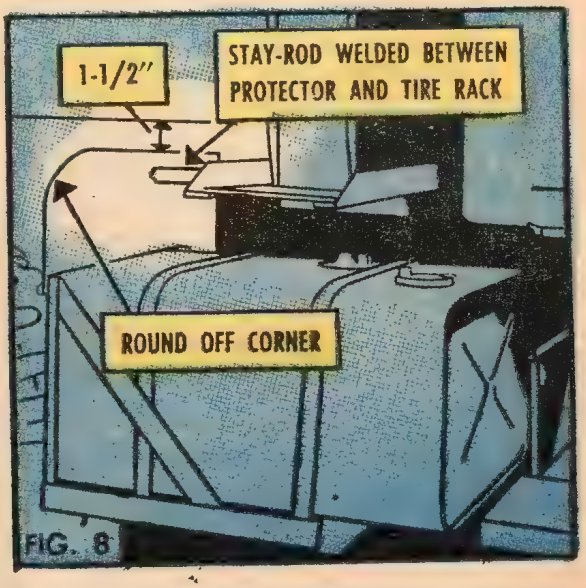
If you've been having trouble with the windshield wipers going on strike, check the mounting screws. You'll probably find that one of them is blocking the wiper's passes. When you find the screw, chop off its end. You'll have active wipers from then on into where it ain't gonna rain no more.

BATTERY TROUBLE

What you need to keep that battery on the M51—the dump truck—from getting a constant shower of rocks and dirt and rubbish, is a higher protector plate on the gas tank. Not only will it keep the battery out of trouble, but it'll also keep the gas tank clean and unhurt.

(continued on page 220)





Baby Does It On

PLASTIC LAMP-LENS

What every young man should know about plastic lens — headlight, blackout light, stop light, etc.—is that while they may look and feel like glass, and substitute for glass, they can't be treated like glass.

You'll find plastic lens on all water-fording vehicles with the 24-volt electrical systems. And if the plastic isn't handled with a kiss and a prayer, you'll find no lens at all on these vehicles.

Moulded plastic has a surface tension —anything that attacks the surface, releases the tension and causes what is known as "crazing" or "checking". It could get worse — the plastic softens, warps, and fogs into a milky shade. None of this is good.

There are a number of plastic cleaners on the market, but not all of them are good for the particular type of plastic in your lens. These cleaners aren't readily available to you anyway—especially not right when that beautiful camouflage job of mud has to come off. Your best bet is soap and water, or just plain water, applied gently with the bare hand.

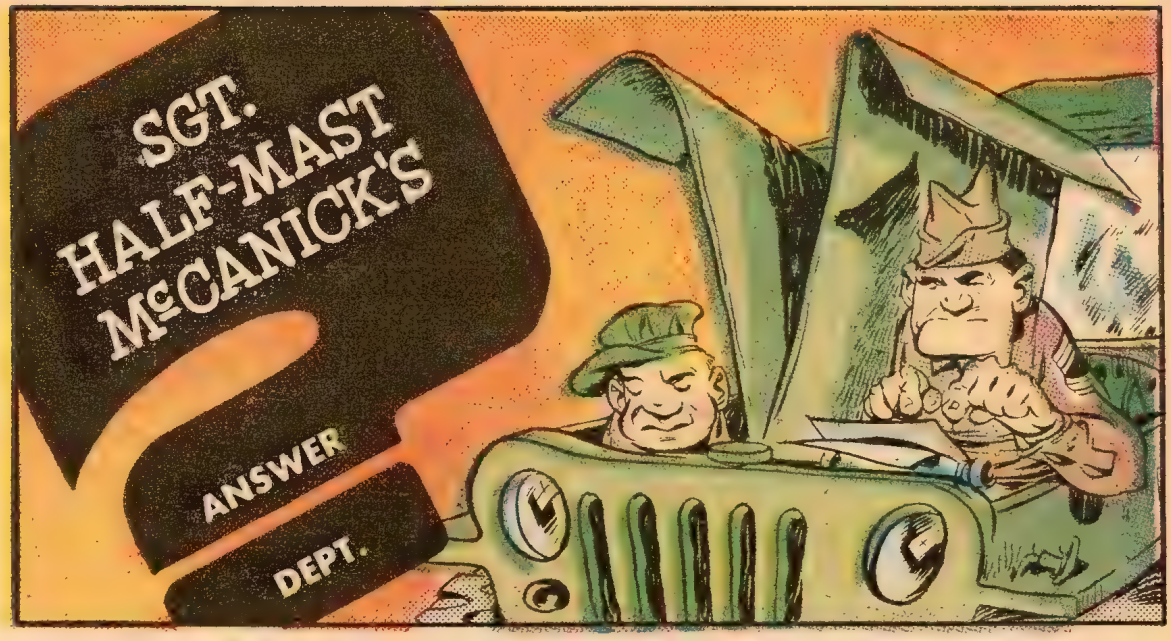
Any vigorous rubbing with a cloth builds up an electrostatic charge on the plastic so that it attracts dust particles from the air. Grinding the dust around the lens will scratch it all to heck. A damp chamois would release this charge, but be mighty sure the chamois is clean, clean, clean.

SB 9-4 (26 July 1946) on preparation of Ordnance material for shipment says: Paint head lamp lenses on all vehicles with black gasoline-soluble lusterless camouflage paint (powder form) . . . But

As said before, what goes with glass doesn't go with plastic. Before painting lenses, you'd do well to place a piece of brown paper or some other non-adhesive material between the lenses and adhesive, and paint over the adhesive. If either paint or adhesive gets on those lenses, you're going to be driving blackout without meaning to.

The secret of keeping plastic lens crystal clear and glass-like is in knowing what will attack the plastic and what won't. Here's a check list.

GOOD	DESTRUCTIVE
Soap & Water	Masking tapes and Adhesive tapes
Water & Soap	Solvents: dry cleaning, acetone, benezene, carbon tetrachloride.
Water & Soap	Thinners, paint & lacquer.
Soap & Water	Grease & oils & gasoline.
Water & Soap	Scouring & window-cleaning compounds.
Soap & Water	Paint.



HARLEY BATTERY POLARITY

Dear Half-Mast,

In my outfit we have a number of H.D. solo motorcycles that are used quite a bit. Right along we'd been installing the batteries positive ground on all of the cycles until suddenly we noticed the points on the voltage regulator were burning out on most of the cycles. When the TM didn't come up with the answer we started wondering about the polarity of the current. Then we contacted a civilian H.D. motorcycle dealer, who notified us that the battery should be installed negative ground.

So what we did was completely drain the batteries twice and recharge them twice and since then we haven't had any trouble. Now what would you have done? Did we do the right thing?

Cpl A. E. V.

Dear Cpl A. E. V.,

What you did was all right but you didn't really have to drain the battery. Simply discharge it completely (turn on all the lights and leave 'em on until the battery's all used up). Then recharge it in the original direction and reconnect it with negative ground polarity. And here's something to keep in mind. It isn't wise to charge any motorcycle battery at a rate of more than 2-3 amperes an hour. Any more than that—and your battery may be a gone goose!

Half-Mast

TANK TRACK REPAIR

Dear Half-Mast,

Can you wise us up on this problem?

If the eccentric is passed while tightening the track on an M46 or similar type track, and the track is still loose, is it advisable to remove one block? If a block is removed from one track, and the other is tight enough not to warrant taking out a block, will this condition have any ill effects on driving? One track will have slightly more surface touching the ground.

Sgt F. L. M.

Dear Sgt F. L. M.,

When the track is still too loose after extreme adjustment, all you can do is pull out a block. One block's difference between the tracks won't affect the steering.

Half-Mast

M34 COMPRESSOR

Dear Half-Mast,

Couple of us guys were arguing about maintenance on the air-compressor air cleaner on the 2½-ton 6x6 Reo M34. Seems some got the idea that the hose which connects the engine air-cleaner and the air-compressor air-cleaner takes care of feeding clean air to the air compressor and no maintenance is needed. I say no. Who's right?

*A. M. P., OCT **

Dear Mr. P.,

If that was a money bet, pick up the chips. That hose you speak of is only for fording and unless the engine air-cleaner is serviced as often as the main air-cleaner, you're going to let dirt into the compressor, eventually into the oil system and bam . . . soon no M34! Tell 'em to hustle and clean that air before it hits the compressor.

Half-Mast

*Ordnance Corps Technician

M38 BRAKE PEDAL

Dear Half-Mast,

While driving one of the new M38 ¼-ton utility trucks not long ago I came across a definite safety hazard which to my mind could be easily, quickly, and cheaply remedied. At present the brake pedal measures approximately 2" x 4" and is so located that unless a man keeps his foot cramped to the right on the accelerator it will invariably slip to the left and under the lip on the right-hand side of the brake pedal. Suppose he has to stop suddenly—what happens? His foot is pinned down by the brake pedal because his shoe is caught on the downward lip. Result—accident!

Let's cut down on these safety hazards all we can. Here are a couple of suggestions. Why not move the pedal to the left and reduce its size? Or remove the lip and round off the corner?

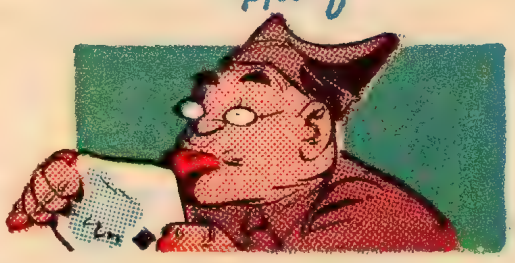
Sgt W. G. H.

Dear Sgt W. G. H.,

We'll go along with you about removing the downward lip on the pedal pad and rounding off the corner, or you might even take the accelerator footrest button off to give your foot a little more room.

Now as to moving the brake pedal, that would be a good idea if there were enough space. But the pedal is mounted on the inside of the left frame-rail. The master cylinder is mounted inside the frame rail and directly behind the brake pedal. The brake pedal cannot be moved to the left because it must aline with the master cylinder and there isn't space to move the master cylinder to the left.

Half-Mast



PAINTING BATTERIES

Dear Half-Mast,

If your readers find it hard to keep corrosion off battery posts and terminals, let them try this. Remove the battery, clean with water and wire brush, blow dry with air gun and then paint posts and terminals good with OD paint. Replace the terminals on the post and after the paint dries there won't be any corrosion for about six months. Best of all, you won't get gigged when Inspectors pay you a visit. This is much cleaner than messy greases.

Mr. W. L. B.

Dear Mr. B.,

Not me, Mr. B.—wouldn't paint a battery under any condition. If you want to get artistic with a paintbrush, dip it in cup grease or petroleum . . . but paint? Not this fellah!

If you wash off the corrosion with plenty of water, lube the battery Posts and cable terminals with a light film of petroleum or grease (#90 transmission is real good), replace the cable terminals and keep the battery clean, should be no more corrosion, ever. If you still got corrosion, you got a most peculiar electrical system.

Like with everything else that's strictly for beauty (didja ever watch a gal make up her face?) it takes care and precision —and most of us tend to get paint-happy with a brush. Then one harassing day when you need your vehicle most ya find it won't go . . . and you'll never suspect a blob of paint plugging the battery-cell vent hole . . . or a thin layer of insulation that won't let the current through.

Not me, Mr. B.—on vehicles, efficiency's better than glamor!

Half-Mast

M34 REAR-WHEEL BEARINGS

Dear Half-Mast,

Read a statement, in the June issue, that you should put an extra pound of grease in the rear wheel hub cavity on the M34.

Tell me, Mr. Crystal Ball, what good's it gonna do?

Cpl T. R. B.

Dear Cpl T. R. B.,

Grease contains oil. If your rear wheel bearings start to get a little hot, because they don't have enough lube, some oil is going to seep from that extra reservoir of grease in the hub cavity and cool them before they get too hot and mess up the works.

Half-Mast

M51 PUBLICATIONS

Dear Half-Mast,

We have a new M51 (5 ton 6x6) International dump truck, and cannot locate a Maintenance Manual or an SNL. How can one of each be obtained?

MSgt R. L. R.

Dear MSgt R. L. R.,

You're out of luck on an SNL for the M51 at this time. That hasn't been published yet. The TM you want is 9-837 and AG publications is waiting for your request

Half-Mast

M24 ENGINE OVERHEATING

Dear Half-Mast,

We have two M24 tanks in our Recon Platoon. One of these tanks runs so hot we can't drive it over four miles without it boiling over. It's just one engine that causes the trouble. We've tried everything in the book and we're stuck Sarge, got any ideas?

Cpl K. F. Z.

Dear Cpl K. F. Z.,

Yeah, I got ideas—but she's married, so back to business. When you got one hot plant in the hull, there's two things to consider: 1—Are all the factors that contribute to cooling on the button? 2—Is the hot engine doing all the work, consequently overheating?

In addition to your repairs try making these checks: Are seals in the radiator caps and in good condition; recheck fan belts for adjustment (rust on pulleys may have given false adjustment); make sure bulkhead plates and transfer case covers have not been removed (allows hot air recirculation); synchronization of engines; synchronization of hydramatic transmission; fuel-air mixture.

Watch for the galvanized plating inside fuel tanks peeling, rusting, and clogging lines; fuel pumps in tanks sometimes become coated with varnish caused from stale gas, it may be gumming the pumps.

Half-Mast

AXLE-FLANGE-HUB SEAL

Dear Half-Mast,

Take it for what it's worth, but I've been able to stop worrying about constant loose bolts on my ¼-ton jeep by substituting Permatex #2 for the axle-flange gasket. I applied the Permatex #2 to the solid metal-to-metal contact of the axle-flange and hub and then secured the flange bolts the same as usual. Did this a month ago, and there's been no sign of lube leakage, or loose bolts.

Cpl G. W. S.

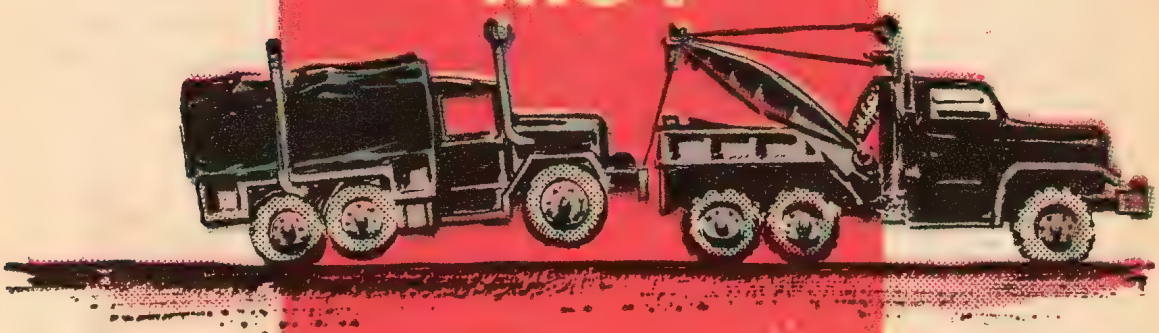
Dear Cpl G. W. S.,

Well, I'm thinking that if you keep your flange bolts properly tight to begin with, shouldn't be any need for substitution—and I can't go along with Permatex #2. It's funny stuff—sets like glue. Use too much and you'll never get your axle off; use too little and it serves no purpose at all...and to get it just right in a place like this, is a real neat trick. At best, Permatex won't keep your bolts from loosening because vibration **will** stretch 'em. And until you can tighten the bolts, the gasket'll take care of the expansion—something Permatex won't do.

Stick to the gaskets (with some Permatex if you like), keep those bolts tight and your jeep will thank you by holding her oil and keeping her yak free of clacks.

Half-Mast

FIVE NEW WAYS TO GET MORE FROM YOUR M34



M34 THROTTLE STOP SCREW

Heard a story the other day about a pack mule who was carryin' a load along a river bank. He thought he was haulin' sugar and deliberately slipped off the bank and into the water. His idea was that the sugar would dissolve and lighten his load. Poor mule had sponges in his pack.

Heard another story that goes like this:

When your M34 hits the 1000-mile mark, it's time to get rid of the throttle stop in your governor. When you remove this and throw it away, **make sure you replace this**

This bolt is a part of your governor and carburetor assembly. It holds the governor tight against the carburetor, making the fit leak-proof. If the fit isn't leak-proof and you and your M34 takes off like a submarine in the first stream you come to, what happens? You suck half the stream into your intake manifold and you're on the bottom like a sack of sponges.

Moral: Better put that screw right back or you're gonna be carryin' that poor mule on your back.

M34 TOWING AND ROLL BACK

"The drivers louse up more units draggin' in a disabled vehicle than was buggered in the first place," is a perennial bellyache of maintenance shop sergeants, "We'd save time and parts by closing the doors and pickin' 'em up ourselves."

If the truck can be towed with all wheels on the ground (no damage to axles, wheels, or transfer) shift both transmission and transfer to NEUTRAL position. Then, the gears in the transmission are not in motion, but the gears in the transfer are revolving and will cause enough lubricant splash for the bearings.

If the transfer is damaged, disconnect drive shafts at front-axle flange and forward-rear-axle flange and secure shafts to frame.

Whenever the truck is to be towed with front wheels off the ground, front

of truck should only be lifted enough to clear ground so all rear wheels on both axles can contact the roadway. Disconnect the propeller shafts at the forward-rear axle, secure the end of the shaft to the frame.

Trucks should be towed backward only when all other methods have proven impractical. To tow truck with rear wheels off the ground, disconnect the propeller shaft at the front-axle flange and secure the end of the shaft to the frame.

And here let it be known that rolling this truck backward for any reason, requires shifting the transmission lever into reverse to insure free movement backward even though the transfer case is in neutral, providing it is equipped with the double-sprag overrunning clutch. Of course a neutral or any forward speed transmission position is OK for forward movement or towing. (There is no free backward movement possible with the single-sprag unit until the propeller shaft is removed).

NOTE: Before removing prop shafts, always raise one wheel on the front axle and one wheel on each rear axle clear of the ground to relieve torsional strain (wind up) and avoid busted knuckles.

HOOD-HOLD-BACK ROD

Mounted on the cowl, in front of the driver, is a rod, better known as a hood-hold-back rod.

When some of us big guys need a lot of room to squirm around in the engine compartment we just lift the hood off the hood support-rod (located at front end of hood) and throw it back against the windshield. Along comes a gust of wind, or a helping hand, and wham goes the hood. It's not choosy about what it whams—skull, fingers or somebody's big fat caboose.

We pick ourselves up off the ground and start to grumble about why they didn't fix a way to hold that hood back when you've got it raised all the way.

Hood-hold-back rod on the cowl in front of the windshield? Now ya tell me . . . now ya tell me.

TRANSMISSION OIL LEVEL

Oil's been getting into the clutch housing—no clutch. Why? Because some fellas don't know how much oil goes into the transmission and overload it. When you overload the transmission the oil drips down into the clutch housing, gets on the clutch-driven-disk facings, and fouls up the clutch.

When filling your transmission, keep a finger in the filler-hole between squirts. When the oil comes to about ¾" below the hole — that's enough. CHECK HER AGAIN WHEN THE OIL'S WARM. If she's overloaded, bring the oil to the correct level by draining.

WATER IN GAS TANK

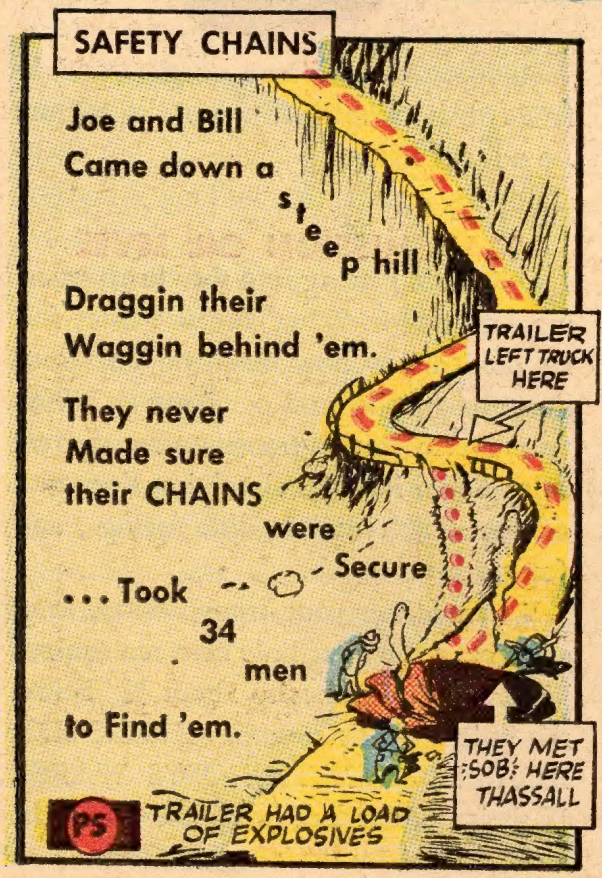
Condensation or leakage is gonna give you an accumulation of water in your gas tank. It'll settle around the copper-fiber filter in the bottom of the tank.

To get rid of this water, you first wipe off the dirt around the filler opening and cap and remove the fuel-tank filler cap*. If you don't know how much gas is in your tank, and, in case something should go wrong, you'd better have a couple of clean containers ready—enough to hold 50 gallons. Next, remove the little sump plug at the base of the tank and let the water drain out—only takes a second or two. Put the sump plug back good'n tight. Connect the accessory air line to either one of the two accessory air line fittings, (located in each side of cab on dash panel) and hook the air line to the gas line in back of the fuel pump. Be sure to do your blowing IN BACK OF THE FUEL PUMP. If you blow through the fuel pump, pressure's going to rupture the diaphragm.

When you're blowing out the line be sure the gas tank cap is off. If it's not, you're going to build up pressure in the gas tank and something's going to let loose.

There may have been some moisture or water in the lines that was pushed through into the gas tank during the blow job. You won't go wrong if you leave off the gas tank cap, take out the sump plug and drain her again. Put the sump plug back in good'n tight before you load her with gas.

*PRESSURIZED—Open slowly



(continued from page 212)

About 1/8" thick plate will do the trick (Fig. 8). It should be cut about 10½" high and 27⅜" wide. Have it welded onto the short plate that's there now, or fasten it however you know best. If you choose to weld, remember you're working right next to a gas tank—if you prefer to use bolts, place a sheet of metal behind the spot you aim to drill to stop the drill bit before it hits the tank. To hold the wide metal protector really solid, you can anchor it to the side of the tire rack (just above the gas tank) with a stay-rod. In any case keep the new addition a good 1½" from the dump body.

And to keep the skin on your knuckles and shins, better round off the corners and bevel the edges.

Connie Rodd's BRIEFS

DANGER! GASOLINE IN THE AIR CLEANER

Gas can get into the air cleaner on your M38 ¼-tons when a full capped-tank is left in the hot sun. It's because heat expands gasoline—and under a 4 or 5 pound tank-pressure, the gas is forced up the breather line and into the air cleaner. Naturally it mixes with the oil and gums up the works.

If you **do** find gasoline in the air cleaner—here's what to do: 1. Drain and clean the air cleaner and replace oil to the marked level. 2. Change engine oil—usually gets diluted by the overflow from the cleaner. 3. Remove distributor cap and look inside for signs of oil or gasoline—which gets in through its vent pipe from the air cleaner. 4. If the gas tank is too full, drive the buggy around for a while to lower the gas level before letting it sit in the noonday sun.

HEADLIGHT ADJUSTMENT

There's been a revision to TB ORD 247 on the procedure for adjusting headlights (PS Magazine, August). Using the same method and measurements, it's now SOP to make the adjustment on vehicles without a load. The theory is that the procedure given will ground the beam at 300 feet on an empty vehicle—then when the vehicle's loaded, it'll automatically raise the beam to give visibility for a greater distance but it still won't be high enough to blind the oncoming driver.

STARTING THE M38

You're wasting your time jiggling the throttle on the M38 ¼-ton to jet a rich charge of fuel into the manifold . . . the accelerator pump is vacuum operated and not mechanically linked with the throttle linkage. On all cool-engine and cold-engine starts, the M38 should be hand choked to avoid unnecessarily long cranking periods.

WATER-PROOF SPARK PLUGS

Changing brands isn't always a cure in the case of break-down of water-proof spark plugs. Some plugs show as much as 400,000 ohm's resistance where maybe 9,000 to 12,000 is good. As a result of this terrific resistance, the insulation on the high-tension cables gets broken down by the current — allowing the spark to ground to the loom.

When you've got trouble along the ignition line that's the result of a grounded high-tension cable — replace the spark plugs as well as the cable, else the new cable will end up the same way.

BE A MAN AMONG MEN

Join the growing club of distinguished men who have helped their brethren . . . men who have sent ideas to PS Magazine and received the great satisfaction belonging to those who aid the general welfare with better ways to do old jobs. Yes, as a contributor you'll become a man among men

Write to editor PS Magazine, Aberdeen Proving Ground, Md.